



Innovation in Mobility

ECLIPSE™
F8100 Series
Export Use
Wheelchair and Standee Lift

PRINT

Service Manual

This Ricon service manual is for use by qualified service technicians, and is not intended for use by non-professionals (do-it-yourselfers). The manual provides essential instructions and reference information, which supports qualified technicians in the correct installation and maintenance of Ricon products.

Qualified service technicians have the training and knowledge to perform maintenance work properly and safely. For the location of a Ricon authorized service technician in your area, call Ricon Product Support at 1-800-322-2884.

Customer Name: _____
Installing Dealer: _____
Date Installed: _____
Serial Number: _____

REVISION RECORD

REV	PAGES	DESCRIPTION OF CHANGE	ECR / ECO
32DF81E02. A	ALL	New release in two-book format.	3802/4820
	4-16 & 4-17	Added part # 11535 (ref #21-1) & # 12128 (ref #21-2) to drawing and parts list.	NONE
32DF81E02. B	Inside Cover	Updated disclaimer on inside cover.	3990/4918
END OF LIST			

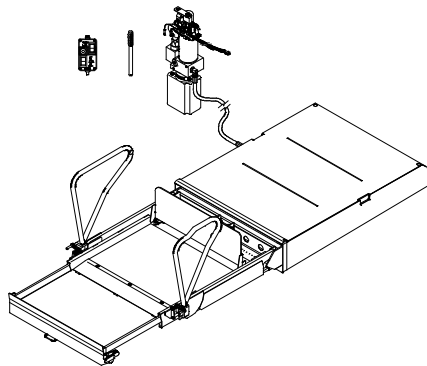
TABLE OF CONTENTS

<u>Chapter:</u>	<u>Page</u>
I. INTRODUCTION.....	1-1
A. RICON ONE-YEAR LIMITED WARRANTY	1-1
B. SHIPMENT INFORMATION	1-3
C. GENERAL SAFETY PRECAUTIONS.....	1-3
D. MAJOR LIFT COMPONENTS	1-4
II. INSTALLATION.....	2-1
A. MECHANICAL INSTALLATION.....	2-1
1. LIFT LOCATION.....	2-1
2. LIFT MOUNTING.....	2-1
3. HYDRAULIC POWER UNIT	2-2
B. ELECTRICAL	2-3
C. FINAL ADJUSTMENTS	2-4
1. FLOOR LEVEL TRAVEL LIMIT SETTING	2-4
2. BRIDGEPLATE ADJUSTMENT	2-6
3. LIFT STOW LEVEL SETTING.....	2-6
D. VERIFY INSTALLATION	2-7
E. CUSTOMER ORIENTATION.....	2-8
III. MAINTENANCE AND REPAIR.....	3-1
A. MAINTENANCE SCHEDULE	3-1
B. TROUBLESHOOTING.....	3-2
1. LIFT TROUBLESHOOTING GUIDE.....	3-2
2. LIFT OPERATIONAL TROUBLESHOOTING	3-4
C. POWER CUT OFF INTERLOCK INDICATOR DIAGNOSTICS	3-5
D. ELECTRICAL WIRING DIAGRAMS	3-5
1. COLOR CODES	3-5
2. CONNECTORS	3-6
3. SYMBOLS	3-6
4. WIRING DIAGRAM.....	3-6
E. HYDRAULIC POWER UNIT FLUID FLUSH AND RENEWAL	3-8
F. BLEEDING THE HYDRAULIC SYSTEM.....	3-8
IV. PARTS DIAGRAMS AND LISTS	4-1
APPENDIX: LIFT SPECIFICATIONS	4-16

This page intentionally left blank.

I. INTRODUCTION

The RICON Eclipse F8100 Series Export Use Wheelchair and Standee Lift provides wheelchair access to vehicles. The patented movement ensures smooth, safe entry and exit and easily lifts up to 660 pounds (300 kilograms). It is operated by a trained attendant or the vehicle driver. The operator uses the control pendant to extend the lift OUT (deploy) and then raise the platform to the vehicle floor height. The user boards the large non-skid platform and the operator uses the control switches to gently lower the platform to the ground. After the user departs, the platform is raised and retracted IN (stowed).



The Eclipse is an underfloor lift with a powerful electrical hydraulic pump. The lift also contains a built-in manual backup pump. If the lift loses electrical power, two or more people can raise and/or lower the lift manually.

This manual contains installation and maintenance instructions and a troubleshooting guide for the lift. For operating instructions please refer to the Operators manual. It is important to user safety that the lift operator(s) be completely familiar with the operating Instructions. Once the lift is installed, it is very important that the lift be properly maintained by following the Ricon recommended cleaning, lubrication, and inspection instructions.

If there are questions about this manual, or additional copies are needed, please contact Ricon Product Support at one of the following locations:

Ricon Corporation
7900 Nelson Road
Panorama City, CA 91402 (818) 267-3000
Outside (818) Area Code (800) 322-2884
World Wide Website www.riconcorp.com

Ricon U.K. Ltd.
Littlemoss Business Park, Littlemoss Road
Droylsden, Manchester
United Kingdom, M43 7EF (+44) 161 301 6000

A. RICON ONE-YEAR LIMITED WARRANTY (refer to following page)

RICON CORPORATION ONE-YEAR LIMITED WARRANTY

Ricon Corporation (Ricon) warrants to original purchaser of this product that Ricon will repair or replace, at its option, any part that fails due to defective material or workmanship as follows:

- Repair or replace parts for a period of one year from date of purchase. A complete list of parts covered by this warranty can be obtained from an authorized Ricon dealer.
- Labor costs for specified parts replace under this warranty for a period of one year from date of purchase. A Ricon rate schedule determines the parts covered and labor allowed.

If You Need to Return a Product: Return this Ricon product to your installing dealer. Please give as much advance notice as possible and allow a reasonable amount of time for repairs.

If You are Traveling: All authorized Ricon dealers honor this warranty. Consult a telephone directory or call our Product Support department for the name of the nearest authorized Ricon dealer.

This Warranty does not Cover:

- Malfunction or damage to product parts caused by accident, misuse, lack of proper maintenance, neglect, improper adjustment, modification, alteration, the mechanical condition of vehicle, road hazards, overloading, failure to follow operating instructions, or acts of Nature (i.e., weather, lightning, flood).

Note: Ricon recommends that this product be inspected by an authorized Ricon service technician at least once every six months or sooner if necessary. Any required maintenance should be performed at that time.



WARNING!

THIS PRODUCT HAS BEEN DESIGNED AND MANUFACTURED TO EXACT SPECIFICATIONS. MODIFICATION OF THIS PRODUCT IN ANY RESPECT CAN BE HAZARDOUS.

This Warranty is Void if:

- Product has been installed or maintained by someone other than an authorized Ricon service technician.
- Product has been modified or altered in any respect from its original design without written authorization by Ricon.

Ricon disclaims liability for any personal injury or property damage that results from operation of a Ricon product that has been modified from the original Ricon design. No person or company is authorized to change the design of this Ricon product without written authorization by Ricon.

Ricon's obligation under this warranty is exclusively limited to the repair or exchange of parts that fail within the applicable warranty period.

Ricon assumes no responsibility for expenses or damages, including incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply.

Important: The warranty registration card must be completed and returned to Ricon within 20 days after installation of this Ricon product for the warranty to be valid. The warranty is not transferable.

The warranty gives specific legal rights, and there may be other rights that vary from state to state.

B. SHIPMENT INFORMATION

Ricon does not sell directly to user because of the specialized nature of this product. Instead, the product is distributed through a worldwide network of authorized Ricon dealers, who perform actual installation.

- When the product is received, unpack it and check for freight damage. Claims for any damage should be made to freight carrier immediately.
- Be sure installation kit contains all items listed on kit packing list. Please report any missing items immediately to Ricon Product Support. The warranty and owner's registration cards must be completed and returned to Ricon within 20 days for the warranty to be valid.

NOTE: The Sales/Service Personnel must review Warranty and this Operator Manual with user to be certain that they understand safe operation of product. Instruct user to follow operating instructions without exception.

C. GENERAL SAFETY PRECAUTIONS

The following general safety precautions must be followed during installation, operation, service, and maintenance:

- Under no circumstances should installation, maintenance, repair, and adjustments be attempted without immediate presence of a person capable of rendering aid.
- An injury, no matter how slight, should always be attended. Always administer first aid or seek medical attention immediately.
- Protective eyeshields and appropriate clothing should be worn at all times.
- To avoid injury, always exercise caution when operating and be certain that hands, feet, legs, and clothing are not in the path of product movement.
- Batteries contain acid that can burn. If acid comes in contact with skin, flush affected area with water and wash with soap immediately.
- Always work in a properly ventilated area. Do not smoke or use an open flame near a battery.
- Do not lay anything on top of a battery.
- Check under vehicle before drilling so as not to drill into frame, subframe members, wiring, hydraulic lines, fuel lines, fuel tank, etc.
- Read and thoroughly understand operating instructions before attempting to operate.
- Inspect product before each use. If an unsafe condition, unusual noises or movements exist, do not use it until problem is corrected.
- Never load or stand on platform until installation is complete. Upon completion of installation, always test load the lift to 125% of its rated load capacity.
- Stand clear of doors and platform and keep others clear during operation.
- The product requires regular periodic maintenance. A thorough inspection is recommended at least once every six months. The product must always be maintained at the highest level of performance.

D. MAJOR LIFT COMPONENTS

The references used throughout this manual are illustrated in **Figure 1-1** and defined in **Table 1-1**. Refer to the Service Manual, Chapter IV for more details.

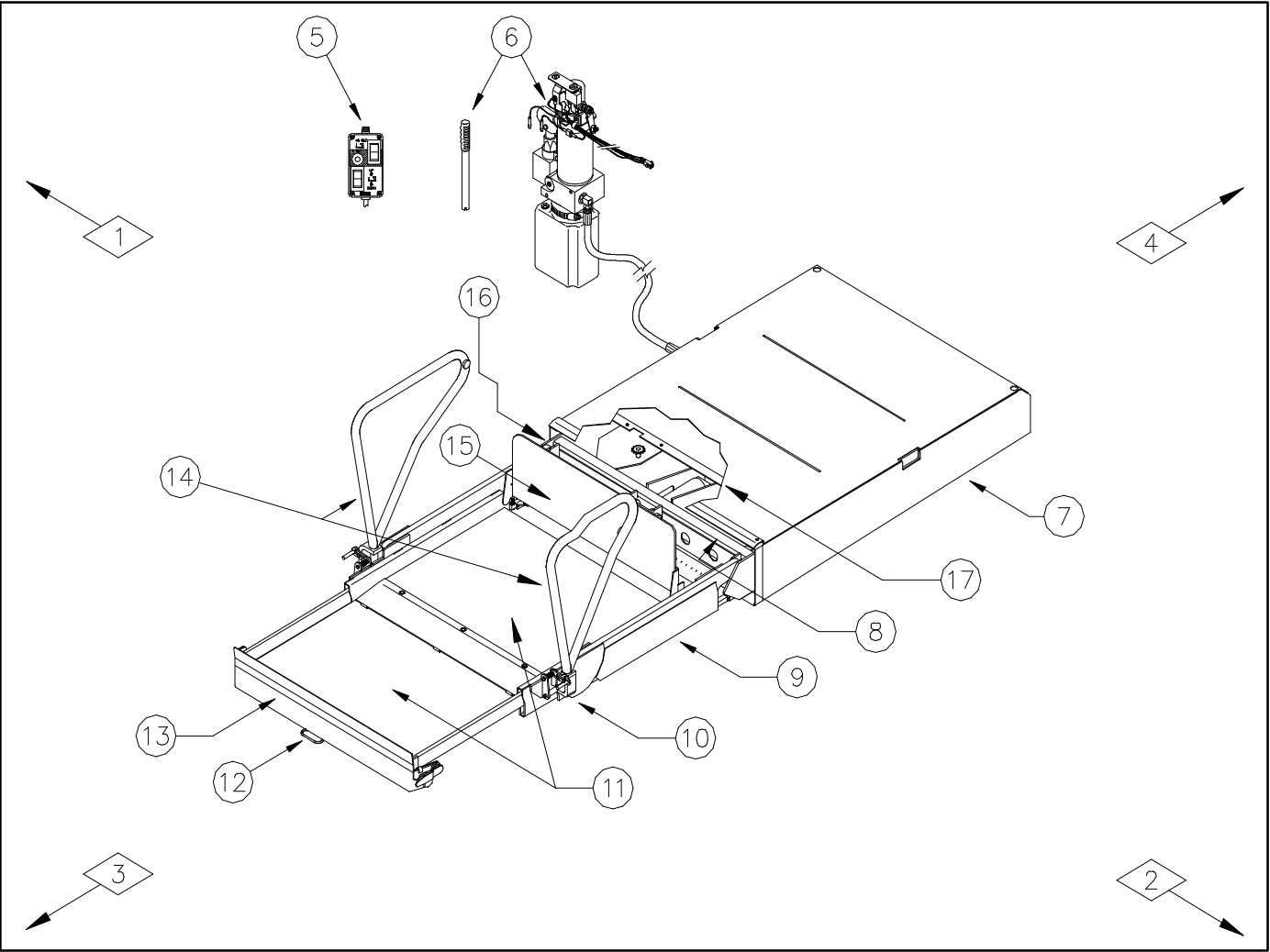


FIGURE 1-1: LIFT REFERENCES

TABLE 1-1: F8100 SERIES EXPORT LIFT TERMINOLOGY		
REF	NAME	DESCRIPTION
1	Left	Lift references when installation is viewed from outside of vehicle.
2	Right	
3	Front	
4	Rear	
5	Control Pendant	Hand-held device used to control the lift operating functions.
6	Power Unit	Electro-hydraulic pump that performs the lift raise/UP and lower/DOWN functions.
7	Lift Enclosure	Cassette type structure, rigidly attached to the vehicle, which contains the lift.
8	Carriage	Part of traveling frame that contains the necessary components to extend/deploy the lift OUT and retract/stow the lift IN.
9	Lifting Frame	Part of the frame that connects the platform to the hydraulic cylinder for raising/UP and lowering/DOWN.
10	Handrail Lock Assembly	Manually activated mechanism used to lock the handrail in the upright position.
11	Platform	Component where the occupant sits or stands during lift operations. Consists of fixed platform and sliding platform sections.
12	Platform Lock Handle	Handle used to lock / or release sliding platform section.
13	Platform Rollstop	Front barrier to prevent the wheelchair from slow, inadvertent rolling off the platform during lift operation.
14	Folding Handrails	Provide a hand-hold for the platform occupant.
15	Bridgeplate	Plate bridging the gap between platform and vehicle threshold. Also serves as a rear rollstop when the platform is deployed.
16	Manual Release Handle	Handle used to release the platform for stowing.
17	Deployment System	The electrical gear-motor and associated mechanical hardware used to extend/deploy the lift OUT and retract/stow the lift IN.
END OF TABLE		

This page intentionally left blank

II. INSTALLATION

The RICON Eclipse F8100 Series Export Use Wheelchair and Standee Lift is installed in an enclosure that is mounted to the underside of the vehicle (behind bottom step riser). Due to the wide range of applications for the lifts, it is impossible to provide specific information about every possible installation. The following general procedures will apply to many installations. Contact Ricon Product Support for instructions on installations not covered. To install the lift, refer to the following sections and perform the procedures carefully and in the order that they are presented. Be certain that the installation instructions are followed exactly and do not eliminate any steps or modify the product.

A. MECHANICAL

1. LIFT LOCATION

The location of the lift depends on the motion path of the platform. The lift must be located so that the platform can move unobstructed through its required range of travel.

2. LIFT MOUNTING

- Refer to **Figure 2-1**. Mechanical support of the lift will be provided at four (two on each side) attachment points. Each attachment point consists of two 5/16-18 threaded inserts.

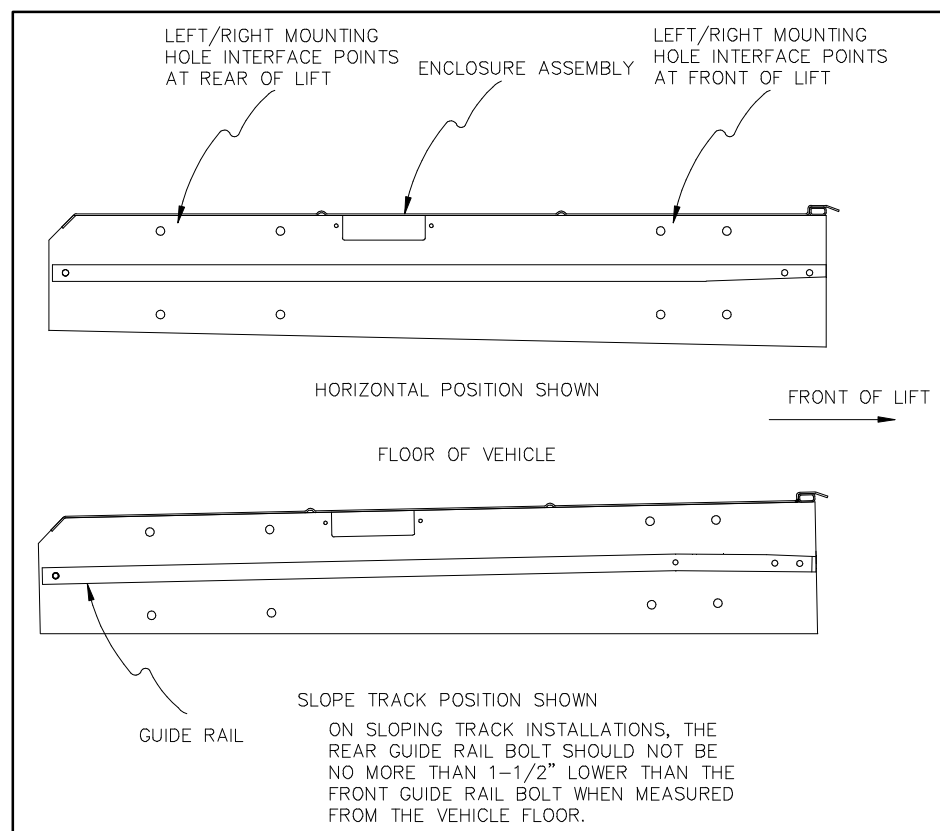


FIGURE 2-1: LIFT MOUNTING ATTACHMENT POINTS

- Since lift mounting varies from one model to another, the vehicle mounting brackets for attachment of the lift are not supplied. When fabricated, the mounting brackets must meet the criteria in **Table 2-1**.

TABLE 2-1: LIFT MOUNTING BRACKET LOAD CAPACITIES		
Load Direction	Front Supports (total capacity for left and right mounting points)	Rear Supports (total capacity for left and right mounting points)
Vertical	2300 lbs	1100 lbs
Longitudinal (perpendicular to vehicle drive axles)	450 lbs	2000 lbs
Lateral (parallel to vehicle drive axles)	225 lbs	1000 lbs
END OF TABLE		

- Refer to **Figure 2-2**. Use screws, washers, and lock washers provided to affix the lift. Use additional flat washers as necessary to achieve required thread engagement. Torque screws to 17 Ft-lb or 248 NM.

 **CAUTION!**

- Hardware for mounting the lift must be a minimum of 5/16" diameter, with a grade of 5 or better.
- If screws protrude too far into the enclosure, interference with the lift traveling frame will result.

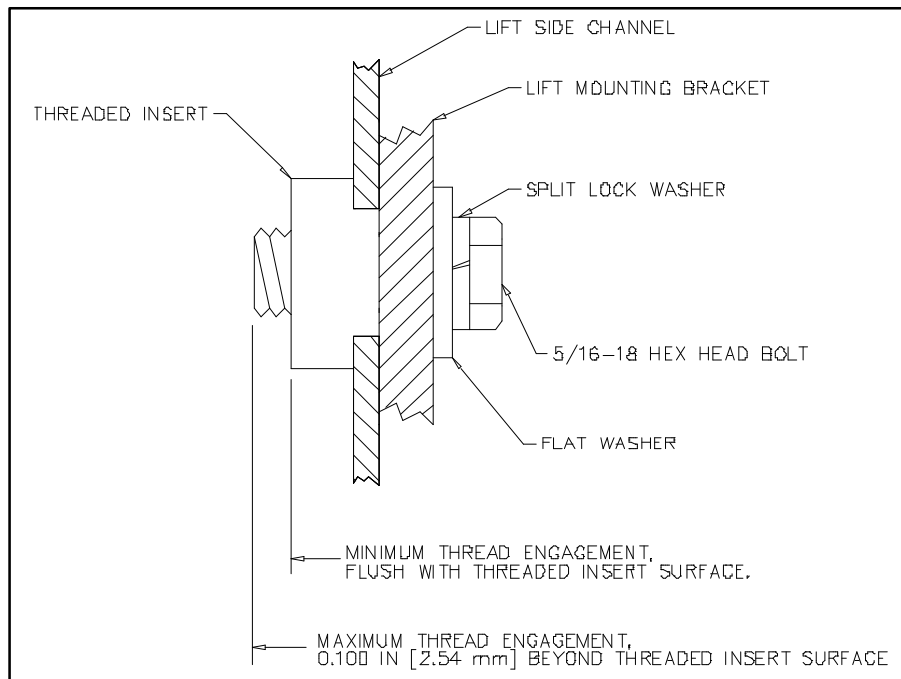


FIGURE 2-2: LIFT MOUNTING HARDWARE

3. HYDRAULIC POWER UNIT

a. Unit Mounting

 CAUTION!
The hydraulic power unit must be located so that: • The door on the pump enclosure must open/close freely with no obstructions. • The manual pump handle must be accessible and operable. • The operator has an unobstructed view of the platform surface while operating the manual back-up system.

- ◆ The design capacity of the brackets used to mount the hydraulic power unit must meet the criteria listed in **Table 2-2**. The pump mounting must be able to withstand heavy loads applied during manual pump operation.

TABLE 2-2: HYDRAULIC POWER UNIT BRACKET LOAD CAPACITIES	
LOADING DIRECTION	BRACKET CAPACITY
Vertical	125 lbs
Longitudinal (perpendicular to vehicle drive axles)	200 lbs
Lateral (parallel to vehicle drive axles)	100 lbs
END OF TABLE	

b. Unit-to-Cylinder Connection

- 1) Connect the main hydraulic hose to the hydraulic power unit if not already done.
- 2) Operate the manual backup pump until hydraulic fluid flows out of the open end of the main hydraulic hose.
- 3) Lower the platform to ground level.
- 4) Remove the plug on the top of the hydraulic pump tank. Make sure that the hydraulic fluid in the tank is at the FULL level. Fill only with Texaco No. 01554 aircraft hydraulic fluid (or equivalent U.S. mil spec H5606G oil) and reinstall the plug.

B. ELECTRICAL

Whether the vehicle electrical system is +12VDC or +24VDC, insulated return or chassis ground, the electrical installation is similar. To install electrical power to the lift, follow this procedure:

 CAUTION!
Check vehicle before drilling. Do not drill into factory wiring, hydraulic lines, fuel lines, fuel tank, etc.

1. At vehicle engine or battery compartment, mount supplied Main Circuit Breaker within 10 - 12" (25 - 30 cm) of battery.
2. Adjacent to lift hydraulic pump unit, drill one 3/4" (19.5-mm) hole through vehicle floor, deburr hole, and install grommet.
3. Insert lift power cable harness through drilled hole.

 CAUTION!
When routing power cable, avoid hazards such as vehicle drive shafts, moving suspension parts, exhaust systems, etc.

4. From beneath vehicle, run harness along vehicle frame to circuit breaker. Make sure harness does not interfere with moving or hot parts and secure with cable ties every 18" (45 cm).
5. At engine compartment, cut and retain 12" (30 cm) section from end of harness RED wire.
6. Measure RED wire to reach circuit breaker and cut and remove any excess wire from harness.
7. Using wire crimpers, crimp supplied terminal to end of RED harness wire and connect to circuit breaker AUX terminal.

8. Crimp supplied terminals to both ends of previously cut 12" (30 cm) section of RED wire.
9. Connect end of 12" (30 cm) section of RED wire to circuit breaker BAT terminal.



WARNING!

- WEAR PROTECTIVE CLOTHING AND EYE PROTECTION AT ALL TIMES. BATTERIES CONTAIN ACID THAT CAN BURN. IF ACID COMES INTO CONTACT WITH SKIN, IMMEDIATELY FLUSH AFFECTED AREA WITH WATER AND WASH WITH SOAP.
- DO NOT SMOKE OR USE OPEN FLAME IN THE VICINITY OF BATTERY. ALWAYS WORK IN PROPERLY VENTILATED AREA.
- DO NOT LAY ANYTHING ON TOP OF A BATTERY.

10. Connect other end of 12" (30 cm) section of RED wire to POSITIVE (+) terminal of vehicle battery.

C. FINAL ADJUSTMENTS



WARNING!

FAILURE TO PROPERLY ADJUST EQUIPMENT MAY RESULT IN UNSAFE OPERATING CONDITIONS FOR THE WHEELCHAIR OCCUPANT AND ATTENDANT.

1. FLOOR LEVEL TRAVEL LIMIT SETTING

The floor level travel limit setting is set at the factory for maximum travel. Follow this procedure for checking and setting the platform travel limit at the proper vehicle floor level.

- a. Deploy the lift.
- b. Raise platform to the proper vehicle floor level and measure the distance between it and the top platform surface. The floor level travel limit must be set so that the top platform surface is between 1" and 1-5/8" above the vehicle floor. Proceed with the following adjustment if distance is incorrect.

NOTE: Do not attempt to adjust bridgeplate until the travel limit has been set.

- c. Provide support to the lift platform after raising platform.
- d. Gain access to underside of platform.
- e. Refer to **Figure 2-3**. Loosen lock-nut from against trunnion.

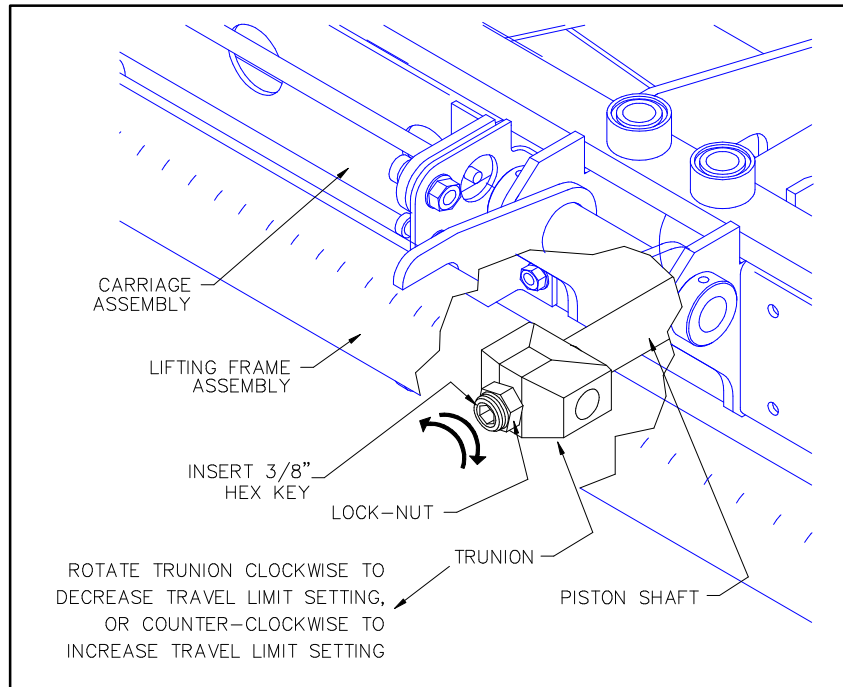


FIGURE 2-3: TRAVEL LIMIT ADJUSTMENT

- f. Refer to **Figure 2-4**. Remove screws retaining keeper plates on both sides of lifting frame, and remove keeper plates. This will allow the trunnion to rotate freely around the hydraulic cylinder piston shaft.

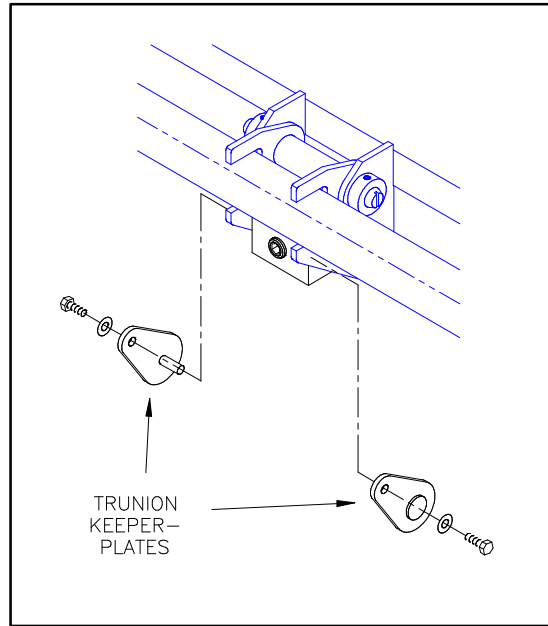


FIGURE 2-4: TRUNNION REMOVAL

NOTE: It may be necessary to drive the cylinder piston shaft out slightly to enable free rotation of the trunnion around the piston shaft. If so, pump the manual back-up system in an up/down motion until free rotation is achieved.

- g. Turn the trunnion clockwise to decrease the travel limit distance, or counter-clockwise to increase the travel limit distance.

NOTE: If increasing travel limit distance, loosen the bridgeplate adjusting hex-nuts toward the end of pullrods to avoid damage.

- h. Align the lifting frame and trunnion keeper pin holes, and reinstall keeper pins through the lifting frame and trunnion. If keeper pins do not insert easily, remove keeper pins and check to verify proper alignment between installation holes.
- i. Fasten keeper pins to the lifting frame using the removed screws. Remove platform support.
- j. Lower to ground level. Raise to vehicle floor level, and from stow level to vehicle floor level, to verify that the travel limit stops at the proper vehicle floor level. Repeat this procedure if further adjustment is required. Tighten lock-nut against trunnion.

NOTE: If the desired platform travel limit is within 1" of the proper vehicle floor level, follow the procedure below to allow for further adjustment without removing keeper pins.

- 1) Raise platform to its vertical travel limit and determine the amount of adjustment required (i.e., 1/2", etc.), then lower platform 1" to 2".
- 2) Remove lock-nut from piston shaft, and, using a 3/8" hex key, insert and turn the cylinder piston shaft clockwise to increase the travel limit distance, or counter-clockwise to decrease the travel limit distance. A leverage of 12" to 18" will be required to turn the cylinder piston shaft.
- 3) Lower to ground level. Raise to vehicle floor level, and from stow level to vehicle floor level, to verify that the travel limit stops at the proper vehicle floor level. Repeat steps k and l if further adjustment is required. If not, replace and tighten lock-nut against trunnion.

2. BRIDGEPLATE ADJUSTMENT

NOTE: The floor level travel limit must be set before attempting to adjust bridgeplate.

Refer to **Figure 2-5**. Bridgeplate deployment is controlled by the bridgeplate actuator pullrods. The length adjustment of each pullrod determines the position of the bridgeplate relative to the platform as the platform moves through its vertical range of travel.

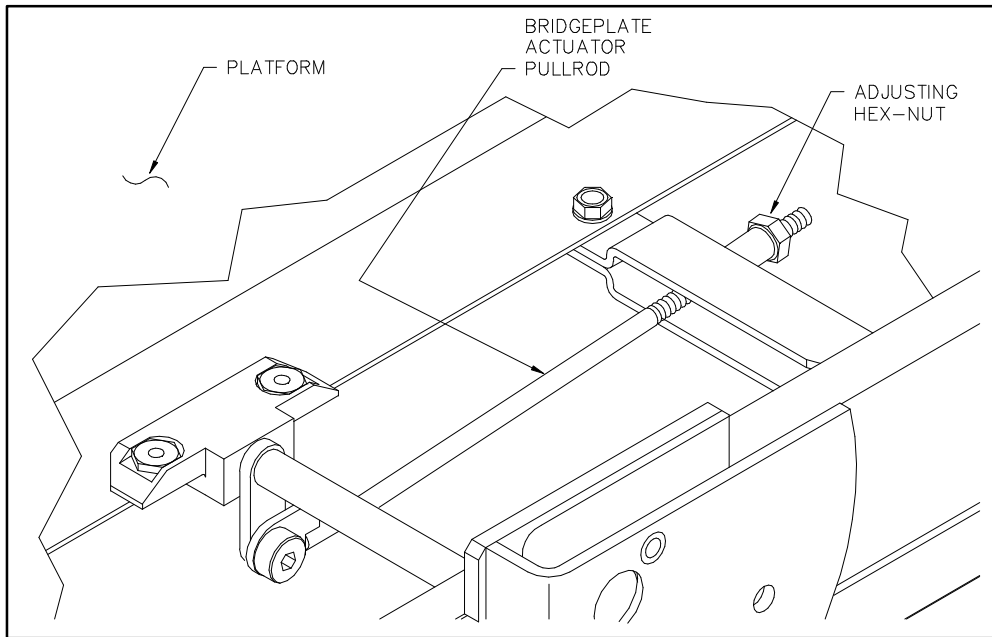


FIGURE 2-5: BRIDGEPLATE ADJUSTMENT

The actuator pullrod must be adjusted to allow full deployment of the bridgeplate as the platform reaches the vehicle floor level travel limit. Lengthening the pullrod delays deployment of the bridgeplate, while shortening the rod accelerates deployment of the bridgeplate. Both actuator pullrods must be adjusted simultaneously and evenly so that one pullrod does not drive the motion of the bridgeplate in any one direction.



CAUTION!

PREMATURE DEPLOYMENT OF THE BRIDGEPLATE COULD CREATE A DANGEROUS SITUATION FOR THE LIFT OCCUPANT, AND CAUSE DAMAGE TO THE BRIDGEPLATE, PLATFORM, OR VEHICLE.

- a. Deploy and raise platform to its vertical travel limit.
- b. Gain access to underside of platform.

NOTE: The pullrod adjustments must be performed simultaneously and evenly.

- c. Turn adjusting hex-nuts at each pullrod clockwise an equal number of turns to lower the bridgeplate at the vehicle floor level, or counter-clockwise to raise the bridgeplate at the vehicle floor level.
- d. Lower platform to stow level, then raise platform back to its vertical travel limit. The bridgeplate must be fully deployed at the vertical travel limit. If not, repeat steps **c** and **d**.

3. LIFT STOW LEVEL SETTING

The following procedure provides for setting the proper platform location as the platform approaches stow level from above (vehicle floor level). Adjustment requires setting two setscrews that determine the platform position as it encounters the left/right rocker stop bars. The proper stow level is achieved when the lift stows without interference as it moves along the lift guide rails located inside the lift enclosure assembly.

- a. Deploy the lift. This procedure may be performed without raising handrails and/or deploying sliding platform.

- b. Refer to **Figure 2-6**. Be certain that the sliding platform guide rails make contact with the rocker stop bars.

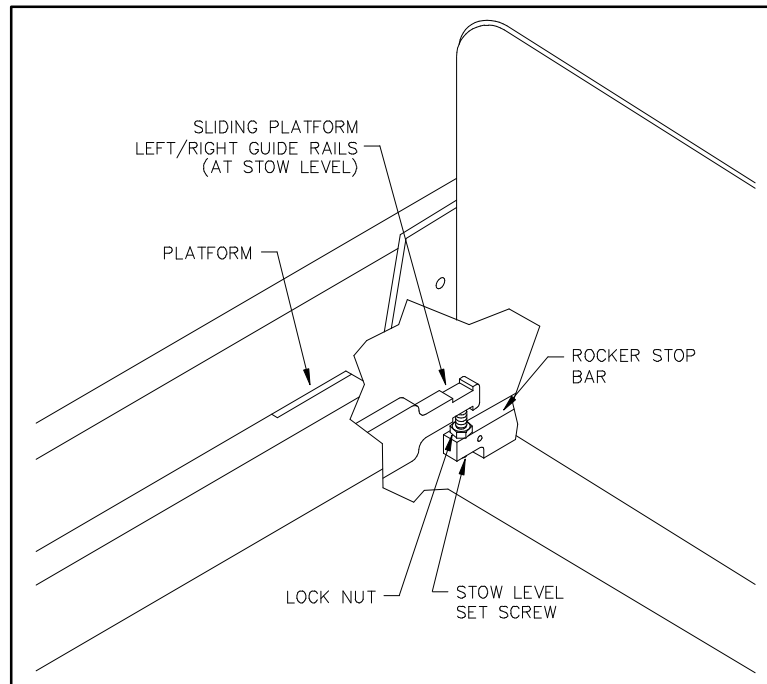


FIGURE 2-6: STOW LEVEL ADJUSTMENT

- c. Gain access to underside of platform.
- d. Loosen lock-nuts from against the left and right rocker stop bars.
- e. From the underside of the rocker stop bars, turn setscrews against guide rails clockwise to raise stow level setting, or counter-clockwise to lower setting.
- NOTE:** Be sure to adjust setscrews on both sides of lifting frame simultaneously. This will ensure proper leveling of platform.
- f. Repeat this procedure and adjust stow level position as required.
- g. When the exact stow level has been achieved, tighten lock-nuts against rocker stop bars.

D. VERIFY INSTALLATION

- Be certain there is no interference with operation of the lift by interior or exterior components.
- The lift is designed to carry the weight of a wheelchair and its passenger. The vehicle structure must be adequate to support all loads produced during lift operation, as well as forces incurred by the motion of the vehicle during driving.



CAUTION!

- Do not operate lift electrically or manually during the load test. The load test is designed to test the installation mounting of the lift **not** its lifting capacity. Remove the test weight immediately after the test.
 - When the test weight is placed on the platform, the vehicle suspension will compress and the vehicle will lean. If the weighted platform touches the ground, remove the weight, raise the platform, and retest.
- The lift must be test loaded to 125% of its rated 660 pound load capacity to verify the integrity of the installation. Position the lift platform 2" - 6" above the ground, place **825** pounds in the center of the platform, and inspect the lift mounting points. **REMOVE THE TEST WEIGHT.**
 - Run the lift through several complete cycles to verify proper operation.
 - Retrieve checklist from documentation kit. Perform the lift checklist inspection per Ricon document 32SL604.

E. CUSTOMER ORIENTATION

IMPORTANT

- Customer Orientation -

Ricon Sales/Product Support must review the Warranty and Service/Owner Manual with the customer to be certain he/she understands the safe operation of the lift. Instruct the customer to always follow the operating instructions without exception.

- Refer to **Figure 2-7** and verify that all decals are properly located and affixed as shown

NOTE: The installing service technician must affix the Operating Instruction decal to the vehicle in a location clearly visible to the operator.

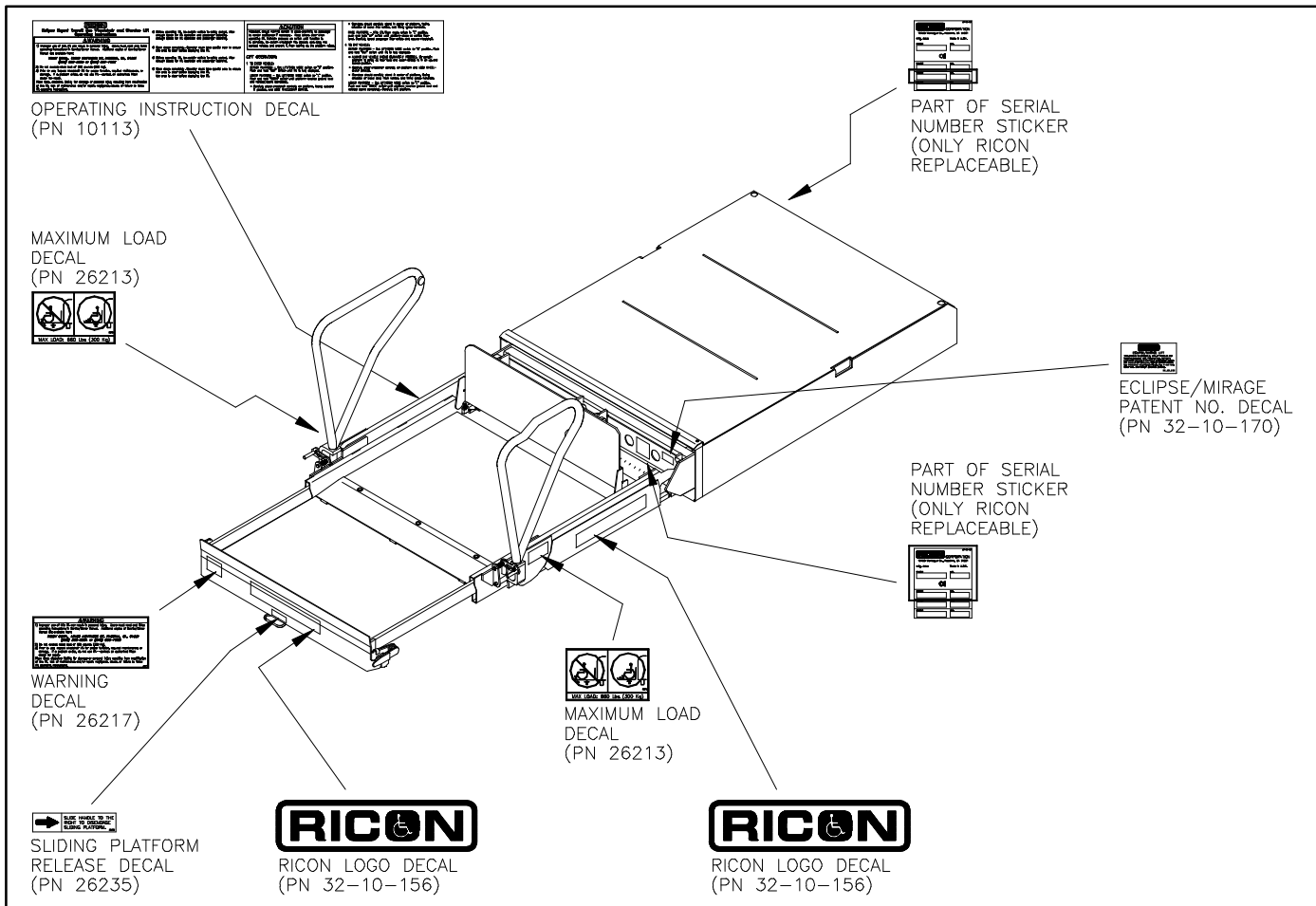


FIGURE 2-7: DECAL LOCATIONS AND PART NUMBERS

III. MAINTENANCE

Routine maintenance of the RICON Eclipse F8100 Series Export Use Wheelchair and Standee Lift will optimize its performance and reduce the need for repairs. Maintenance inspections must be performed by an authorized Ricon service technician at least once every six months or sooner, depending on usage. Maintenance inspections are required at least every six months and a thorough maintenance inspection should be performed at the service intervals referenced in **Table 3-1**. Under conditions of excessive use (more than 10 cycles per day), service should be increased.

 WARNING!
THIS RICON PRODUCT IS HIGHLY SPECIALIZED. MAINTENANCE AND REPAIRS MUST BE PERFORMED ONLY BY AN AUTHORIZED RICON SERVICE TECHNICIAN USING ONLY RICON REPLACEMENT PARTS. MODIFYING OR FAILING TO PROPERLY MAINTAIN THIS PRODUCT WILL VOID WARRANTY AND MAY RESULT IN UNSAFE OPERATING CONDITIONS.

A. MAINTENANCE SCHEDULE

TABLE 3-1: MAINTENANCE SCHEDULE	
SERVICE POINT	DESCRIPTION
DAILY SAFETY CHECK (or @ 10 - 20 cycles of operations)	
General Appearance	If any abnormal noises exist, notify an authorized service technician immediately. Inspect underside of vehicle to verify nothing is out of the ordinary.
Lift Mountings and Support Points	Verify that all lift mounting and support points are in proper order and free from damage. Verify that all mounting bolts are of appropriate grade and sufficiently tight.
Carriage Stops	Verify carriage stops fasten properly.
Main Lifting Pivots	Verify carriage/lifting frame/platform pivot pins are installed properly, free from damage and locked in position with proper fasteners.
Platform and Platform Attachment Points	Verify platform operates properly during lift UP/DOWN functions without obstructions. Verify that all welds on carriage brackets, lifting frame and platform mounting brackets are in proper order. Verify that platform mounting brackets are properly fastened to both sides of the platform with the appropriate bolts.
Bridgeplate and Bridgeplate Operation	Verify that bridge plate functions properly during lift UP/DOWN operations without obstructions. Verify that the bridgeplate deploys fully as the platform stops at the proper vehicle floor level.
Rollstop and Rollstop Operation	Verify that rollstop operates properly on contact with the ground. Verify that rollstop opens, closes and locks properly without obstructions. Verify that rollstop return springs are in proper order.
Handrail and Handrail attachment	Verify that all fasteners are present and properly tightened. Verify that latch and load springs function properly.
BI-WEEKLY SAFETY CHECK (or @ 140 - 180 cycles of operation)	
Labeling, Decals, and Cleaning	Verify that the Rated Load Capacity decal is affixed properly, clearly visible, and legible. Replace if necessary. Verify that all Operating Instruction decals are affixed properly, clearly visible, and legible. Replace if necessary. Verify that serial number is clearly marked, legible and visible. After washing vehicle, spray lubricant, such as Curtisol Red Grease #88167, on all carriage/lifting frame/platform/rollstop pivot points, and rub down all surfaces with oil to avoid rusting of material.

TABLE 3-1: MAINTENANCE SCHEDULE	
SERVICE POINT	DESCRIPTION
THREE MONTH SAFETY CHECK (or @ 900 - 1000 cycles of operation)	
Rollstop Pivot Points	Spray lubricant, such as Curtisol Red Grease #88167, on rollstop pivot points. Wipe clean any excess grease from targeted areas and surrounding areas.
Platform Guides and Bridgeplate Pivot Points.	Spray lubricant, such as Curtisol Red Grease #88167, on sliding platform guide rails and bridgeplate pivot points. Wipe clean any excess grease from targeted areas and surrounding areas.
Hydraulic Fluid Level	Verify that the hydraulic fluid level is maintained at the required "full" level. Add only Texaco 01554 aircraft hydraulic fluid (or equivalent U.S. mil spec H5606G oil).
ANNUAL SAFETY CHECK (or @ 3600 - 4000 cycles of operation)	
Hydraulic Pump Unit	Extract, refill, extract again, and refill the Hydraulic Unit Reservoir to the required "full" line using Texaco 01554 hydraulic fluid. Add only Texaco 01554 aircraft hydraulic fluid (or equivalent U.S. mil spec H5606G oil).
Hydraulic Cylinder/ Flow Control Valve/ Hoses, Lines and Seals	If hydraulic fluid is low, inspect the following for leaks: - Hydraulic Cylinder and Flow Control Valve. - Verify that hydraulic hoses are not damaged. - Verify that all seals are seated properly and all fittings are tightly secured.
*RICON CORP. strongly recommends that this lift be refit after five years of use.	
END OF TABLE	

B. TROUBLESHOOTING

The troubleshooting guide is designed to provide a logical starting point to locate general problems that could occur with the lift. However, not all possible problems or combinations of problems are listed. The troubleshooting guide does not incorporate routine safety precautions or preliminary procedures and assumes that the vehicle battery is fully charged and the battery terminals/connectors are clean and tight. Refer to the following sections:

1. LIFT TROUBLESHOOTING GUIDE

 WARNING!
THE TROUBLESHOOTING GUIDE DOES NOT INCORPORATE ROUTINE SAFETY PRECAUTIONS OR PRELIMINARY PROCEDURES. ONLY AUTHORIZED RICON SERVICE TECHNICIANS MAY PERFORM TROUBLESHOOTING.

TABLE 3-2: TROUBLESHOOTING GUIDE			
FUNCTION	SYMPTOM	POSSIBLE CAUSE	REMEDY
Deploy Lift	Rollstop does not Deploy fully.	Lift too high off the ground due to vehicle position, sloping ground surface.	Make sure that vehicle is parked on level surface.
	Sliding platform will not deploy.	Platform resting on stow level studs.	Raise platform with Control Pendant approximately 1".
		Platform lock bar not released.	Release lock bar and pull platform to its full extension.
Lower Platform	Platform does not lower when DOWN button is pressed.	Hydraulic hose not properly connected to hydraulic cylinder.	Verify proper connection of hydraulic hose to hydraulic cylinder (hydraulic Quick-Connect).
		Down Solenoid Valve electrical connector not connected properly.	Verify proper connection of Down Solenoid Valve electrical connector.

		UP/DOWN switch failure.	Verify proper electrical operation of UP/DOWN switch. Replace if required.
		Obstruction of Flow Control Valve.	Flush Hydraulic system.
		Down Solenoid Valve (DWNSV) failure.	Replace Down Solenoid Valve (DWNSV).
	Platform does not lower manually.	Hydraulic hose not properly connected to hydraulic cylinder.	Verify proper connection of hydraulic hose to hydraulic cylinder (hydraulic Quick-Connect).
		Obstruction of Flow Control Valve.	Flush Hydraulic system.
Raise Platform	Platform does not raise when UP button is pressed. No pump motor spin noise is emitted by Hydraulic Pump Unit.	Hydraulic Pump Motor electrical connectors not connected properly.	Verify proper connection of Hydraulic Pump Motor electrical connectors.
		RAISE/LOWER switch failure.	Replace RAISE/LOWER switch.
		Pump Contractor (CRPMP) failure.	Replace Pump Contractor (CRPMP).
		Hydraulic Manual Release Valve is open.	Close Manual Release Valve fully.
		Hydraulic hose not properly connected to hydraulic cylinder.	Verify proper connection of hydraulic hose to cylinder (hydraulic Quick-Connect).
		Obstruction of Flow Control Valve.	Flush hydraulic system.
		Down Solenoid Valve failure.	Replace Down Solenoid Valve.
		Contamination of Hydraulic Manual Back-Up Pump.	Flush hydraulic system.
		Hydraulic Pump failure.	Replace Hydraulic Pump unit.
	Platform rises when UP button is pressed, but immediately starts to lower after UP button is released.	Hydraulic Manual Release Valve is partially open.	Close Manual Release Valve.
		Down Solenoid Valve failure.	Replace Down Solenoid Valve.
		Contamination of Hydraulic Manual Back-up Pump.	Flush hydraulic system.
		Hydraulic Pump Unit failure.	Replace Hydraulic Pump unit.
Deploy	Lift will not deploy.	Manual release handle is not disengaging.	Lift may be stowed too high. Re-adjust stow level.
		Lift will not pull out and manual release handle disengages.	Lift may not be resting on stow level studs. Raise Lift enough to deploy.
	Lift does not stow.	Deploy Lock Handle will not disengage.	Check for obstructions and verify that there is nothing forcing the lift in while unlocking the Deploy Lock.
END OF TABLE			

2. LIFT OPERATIONAL TROUBLESHOOTING

TABLE 3-3: OPERATIONAL TROUBLESHOOTING GUIDE			
SYMPTOM		POSSIBLE CAUSE	REMEDY
ROLLSTOP DOES NOT OPEN		Obstruction of rollstop release latch.	Raise lift and remove obstruction.
NO LIFT OPERATION		Control System Circuit Breaker tripped.	Reset circuit breaker.
		Main Circuit Breaker tripped.	Reset circuit breaker.
IN OR OUT FUNCTIONS	Abnormal Op-eration.	Obstruction in lift carriage.	Remove obstruction and check for any damage.
	No Operation.	Control System Circuit Breaker tripped.	Reset circuit breaker.
		Main Motor Circuit Breaker tripped.	Reset circuit breaker.
UP OR DOWN FUNCTIONS	Abnormal Op-eration.	Obstruction in lifting frame.	Remove obstruction and check for any damage.
		Backup pump manual release valve OPEN.	Turn manual release valve CLOCK-WISE until slightly snug.
	No Operation.	Control System Circuit Breaker tripped.	Reset circuit breaker.
		Backup pump manual release valve OPEN.	Turn manual release valve CLOCK-WISE until slightly snug.
		Hydraulic hose or fitting leak.	Contact an authorized Ricon service technician for repair.
MANUAL FUNCTIONS	Abnormal Op-eration.	Obstruction in lifting frame.	Remove obstruction and check for any damage.
		Backup pump manual release valve OPEN.	Turn manual release valve CLOCK-WISE until slightly snug.
	No Operation.	Backup pump manual release valve OPEN.	Turn manual release valve CLOCK-WISE until slightly snug.
		Hydraulic hose or fitting leak.	Contact an authorized Ricon service technician for repair.
END OF TABLE			

C. POWER CUT-OFF INTERLOCK INDICATOR DIAGNOSTICS

The purpose of an interlock system is to interfere with the operation of the lift if an unsafe condition is present. When interlock systems are added to the lift, the light is an indication whether or not the interlock is operating properly. The light is placed within the electrical system so that no matter which interlock system/method is used, the light will be ON when the interlock allows operation of the lift and OFF when the interlock has disabled the lift. When there is no interlock system installed, the light stays illuminated.

On all lift assemblies **without** the optional door operator, there is a light-assembly installed in the position where the door operator circuit breaker would normally be mounted. The light indicates when power is being supplied to the signal portion of the electrical system. The light will aid in diagnosing electrical problems. Refer to **Table 3-4**.

TABLE 3-4: INTERLOCK INDICATOR TROUBLESHOOTING GUIDE	
SYMPTOM	POSSIBLE CAUSE
Light is not lit; lift does not operate.	Control system circuit breaker is tripped.
Light is not lit; lift operates.	Light needs to be replaced.
Light is lit; lift does not operate.	There is a problem with the lift electrical system, either with the power or the signal side. Both may have to be checked; start with the power side.
END OF TABLE	

D. ELECTRICAL WIRING DIAGRAM

1. COLOR CODES

TABLE 3-5: COLOR CODE DEFINITIONS			
LETTER	COLOR	LETTER	COLOR
BLK	Black	PNK / VIO	Pink w/ Violet Stripe
BLK / BLU	Black w/ Blue Stripe	PNK / WHT	Pink w/ White Stripe
BLU	Blue	RED	Red
BLU / PNK	Blue w/ Pink Stripe	RED / BLK	Red w/ Black Stripe
BLU / WHT	Blue w/ White Stripe	RED / WHT	Red w/ White Stripe
BLU / YEL	Blue w/ Yellow Stripe	TAN	Tan
BRN	Brown	TAN / RED	Tan w/ Red Stripe
BRN / BLU	Brown w/ Blue Stripe	VIO	Violet
BRN / ORG	Brown w/ Orange Stripe	VIO / BLK	Violet w/ Black Stripe
BRN / YEL	Brown w/ Yellow Stripe	VIO / BRN	Violet w/ Brown Stripe
GRN	Green	VIO / GRN	Violet w/ Green Stripe
GRN / BLK	Green w/ Black Stripe	VIO / WHT	Violet w/ White Stripe
GRN / BRN	Green w/ Brown Stripe	VIO / YEL	Violet w/ Yellow Stripe
GRN / RED	Green w/ Red Stripe	WHT	White
GRN / WHT	Green w/ White Stripe	WHT / BLK	White w/ Black Stripe
GRY	Grey	WHT / ORG	White w/ Orange Stripe
GRY / YEL	Grey w/ Yellow Stripe	WHT / RED	White w/ Red Stripe
ORG	Orange	WHT / YEL	White w/ Yellow Stripe
ORG / BLK	Orange w/ Black Stripe	YEL	Yellow
ORG / YEL	Orange w/ Yellow Stripe	YEL / BLK	Yellow w/ Black Stripe
PNK / BLK	Pink w/ Black Stripe	YEL / PNK	Yellow w/ Pink Stripe
PNK / RED	Pink w/ Red Stripe	YEL / RED	Yellow w/ Red Stripe
END OF TABLE			

2. CONNECTORS

Refer to **Figure 3-1**. The electrical connectors used by Ricon are Molex .062" series. These connectors have terminal numbers on the back. Use these numbers and colors to identify wires.

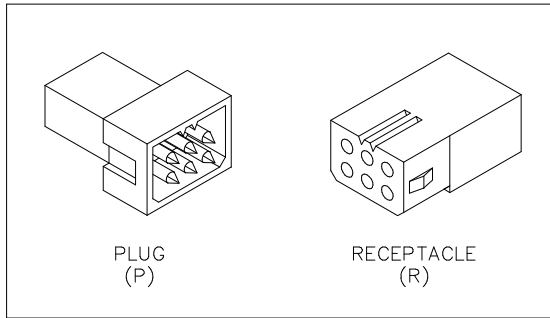


FIGURE 3-1: MOLEX CONNECTORS

3. SYMBOLS

Figure 3-2 shows symbols used in the electrical wiring diagrams.

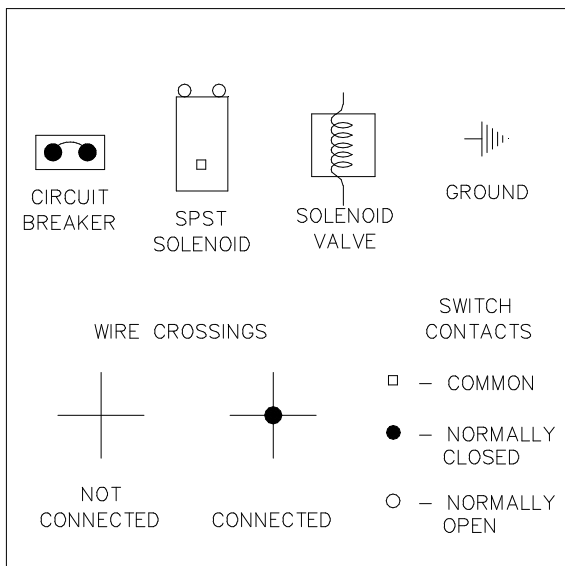


FIGURE 3-2: ELECTRICAL DIAGRAM SYMBOLS

4. WIRING DIAGRAM

Refer to **Figure 3-3** (on following page) for lift electrical wiring diagram.

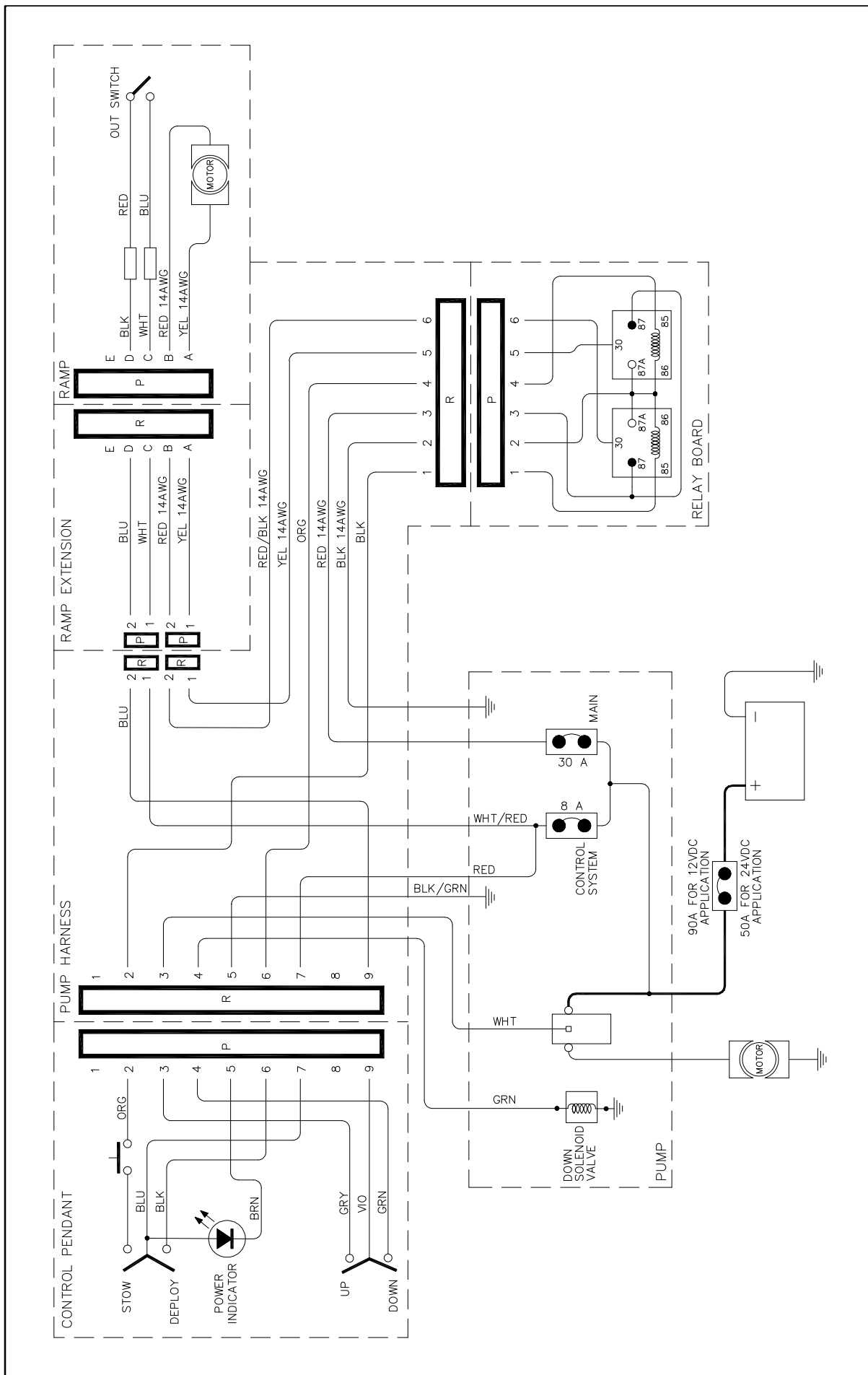


FIGURE 3-3: ELECTRICAL WIRING DIAGRAM

32DF81F02 R

HYDRAULIC POWER UNIT FLUID FLUSH AND RENEWAL

1. Fully deploy the lift.
2. Slowly open the manual release valve to release the hydraulic pressure and lower platform to ground level.
3. Loosen clamp fastening the tank to the pump.
4. Carefully pull tank from the bottom of the pump, and empty the tank into a proper waste fluid container.
5. Reinstall tank onto the pump and tighten the tank clamp.
6. Remove the plug on the top of the tank. Fill the tank with new hydraulic fluid. Fill only with Texaco 01554 aircraft hydraulic fluid (or equivalent U.S. mil spec H5606G oil).
7. Close manual release valve.
8. Using manual back-up pump, manually raise platform to vehicle floor level and lower platform to ground level. Repeat this cycle three times.
9. Slowly open the manual release valve to release the hydraulic pressure and lower platform to ground level.
10. Repeat steps 4 through 6 and proceed to step 11.
11. Close manual release valve.
12. Refer to BLEEDING THE HYDRAULIC SYSTEM.

E. BLEEDING THE HYDRAULIC SYSTEM

The hydraulic system of the lift may have air introduced into the system. If air does enter the hydraulic system, the hydraulic system may appear to soften. This is most noticeable when loading or unloading the platform at vehicle floor level. The air in the hydraulic system must then be removed. The following procedure to remove the air from the system is known as "bleeding".

NOTE: The following procedure can be very messy and is most easily performed by two people.

1. Fully deploy the lift to ground level.

 WARNING!
WEAR PROTECTIVE CLOTHING AND EYE PROTECTION AT ALL TIMES. BATTERIES CONTAIN ACID THAT CAN BURN. IF ACID COMES INTO CONTACT WITH SKIN, IMMEDIATELY FLUSH AFFECTED AREA WITH WATER AND WASH WITH SOAP. DO NOT SMOKE OR USE OPEN FLAME IN THE VICINITY OF BATTERY. ALWAYS WORK IN PROPERLY VENTILATED AREA. DO NOT LAY ANYTHING ON TOP OF A BATTERY.

2. At the vehicle battery/engine compartment, disconnect the cable from the battery positive terminal.
3. Locate the air bleeder valve on the top of the lift cylinder. Access to this valve is from underneath the lift.
4. Raise the platform to vehicle floor level.
5. Open the air bleeder valve with a screwdriver to let air and hydraulic fluid out of the cylinder.

NOTE: This step will cause oil loss. Have dry rags on hand to clean-up spilled hydraulic fluid.

6. Close the air bleeder valve.
7. Lower the platform to ground level.
8. Remove the plug on the top of the hydraulic pump tank. Make sure that the hydraulic fluid in the tank is at the FULL level. Fill only with Texaco 01554 aircraft hydraulic fluid (or equivalent U.S. mil spec H5606G oil) and reinstall the plug.
9. Repeat the previous FIVE steps until the fluid coming out of the air bleeder valve does not contain any air bubbles.

10. Verify that the air bleeder valve is fully closed.

**WARNING!**

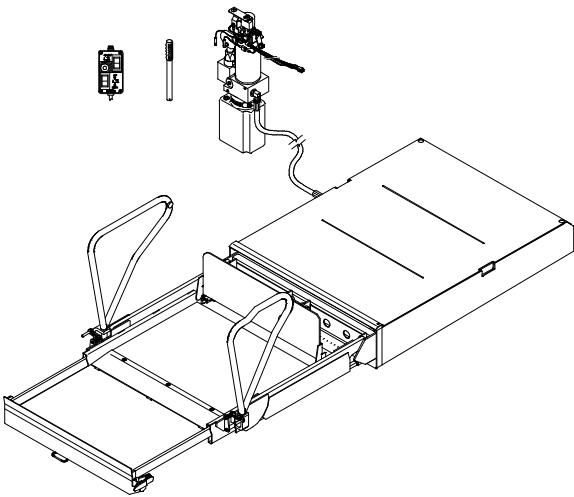
WEAR PROTECTIVE CLOTHING AND EYE PROTECTION AT ALL TIMES. BATTERIES CONTAIN ACID THAT CAN BURN. IF ACID COMES INTO CONTACT WITH SKIN, IMMEDIATELY FLUSH AFFECTED AREA WITH WATER AND WASH WITH SOAP. DO NOT SMOKE OR USE OPEN FLAME IN THE VICINITY OF BATTERY. ALWAYS WORK IN PROPERLY VENTILATED AREA. DO NOT LAY ANYTHING ON TOP OF A BATTERY.

11. At the vehicle battery/engine compartment, connect the cable to the battery positive terminal.
12. Remove the platform support and stow the lift.

This page intentionally left blank

IV. PARTS DIAGRAMS AND LISTS

This chapter contains parts diagrams and parts lists for the RICON Eclipse F8100 Series Export Use Wheelchair and Standee Lift. The parts diagrams are exploded views of major lift components with the individual components referenced by numbers. The accompanying parts list contains the part reference number, description, quantity used, and the Ricon stock number. For the part numbers of the lift decals, refer to Decal Locations and Part Numbers figure in Chapter II of this manual.



LIFT MODEL AND KIT NUMBERS	
PRODUCT NUMBER	F8100-E200A, F8100-E210A, F8100-S300, and F8100-S310A
DOCUMENTATION KIT NUMBER	12121
PRODUCTION DECAL SET NUMBER	12123
SPARE DECAL KIT NUMBER	26003

PARTS DIAGRAM	PAGE
FIGURE 4-1: MONARCH HYDRAULIC POWER UNIT	4-2
FIGURE 4-2: PUMP MOUNTING ASSEMBLY AND PENDANT	4-4
FIGURE 4-3: LIFT ENCLOSURE ASSEMBLY	4-6
FIGURE 4-4: LIFT ENCLOSURE TOP ASSEMBLY	4-7
FIGURE 4-5: PLATFORM ASSEMBLY	4-10
FIGURE 4-6: TRAVELING FRAME ASSEMBLY	4-14
FIGURE 4-7: CARRIAGE ASSEMBLY	4-16
APPENDIX 1: LIFT SPECIFICATIONS	4-18

MONARCH HYDRAULIC POWER UNIT
F8100 SERIES (ALL MODELS) WHEELCHAIR LIFT
SERIAL NO's. 5200 and HIGHER

DATE: 04/17/98
DWG. F8100XX4
REV. B

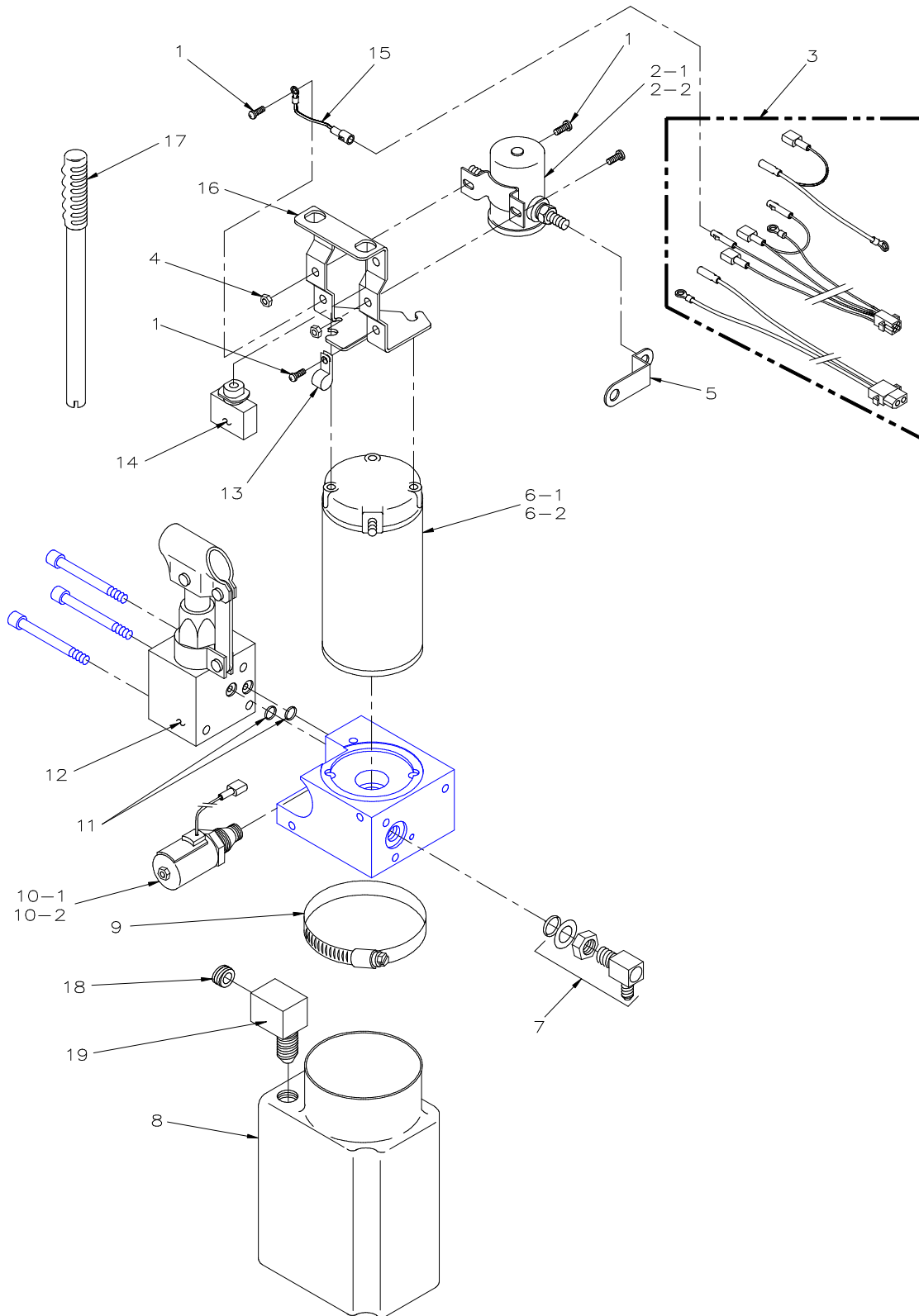


FIGURE 4-1: MONARCH HYDRAULIC POWER UNIT

**FIGURE 4-1: MONARCH HYDRAULIC POWER UNIT
F8100 SERIES (ALL MODELS) WHEELCHAIR LIFT
SERIAL NO's. 5200 and HIGHER**

REF	DESCRIPTION	QTY	PART NO
1	TRS-10-24 X 0.50 PAN PHIL, SELF THREAD	4	28111T
2-1	SOLENOID, SPST, 12V	1	26444
2-2	SOLENOID, SPST, 24V	1	26449
3	HARNESS, PUMP, COMMON TO S-SERIES/UV, 12V & 24V	1	V2-ES-100
4	NUT-10-24, HEX (BAG OF TEN)	2	14489
5	MOTOR, SOLENOID BUS BAR (SP SOLENOID)	1	V2-ES-030
6-1	MOTOR-ASSY. 12V, 3", MONARCH PUMP	1	V2-SH-115
6-2	MOTOR-ASSY. 24V, 3", MONARCH PUMP	1	V2-SH-116
7	ADAPTER-L 7/16M 9/16M ORB/JIC 1.03 X 1.06	1	V2-SH-14
8	RESERVOIR-RICON POWER UNIT, PLASTIC	1	V2-SH-108
9	CLAMP-HOSE, 3.5 DIA.	1	V2-SH-109
10-1	HYDRAULIC-ASSY. POPPET VALVE, 12V DELTROL	1	V2-SH-105
10-2	HYDRAULIC-ASSY. POPPET VALVE, 24V DELTROL	1	V2-SH-136
11	O-RING, NITRILE, 0.301ID, 0.070 WIDTH	2	24011
12	BACK-UP PUMP- MANUAL WITH OUT HANDLE	1	V2-SH-110
13	CABLE CLAMP, 3/8"	1	25516
14	CIRCUIT BREAKER-8AMP (RED)	1	265108
15	ELWO5900/26493/26533/26354	1	ELJ01060
16	BRACKET-SOLENOID MOUNTING	1	V2-SH-127
17	HANDLE-MANUAL BACK UP PUMP	1	V2-SH-111
18	PLUG-RESERVOIR, BREATHER FILLER	1	V2-SH-106
19	FITTING-STREET ELBOW, FEMALE LARGE	1	V2-SH-013

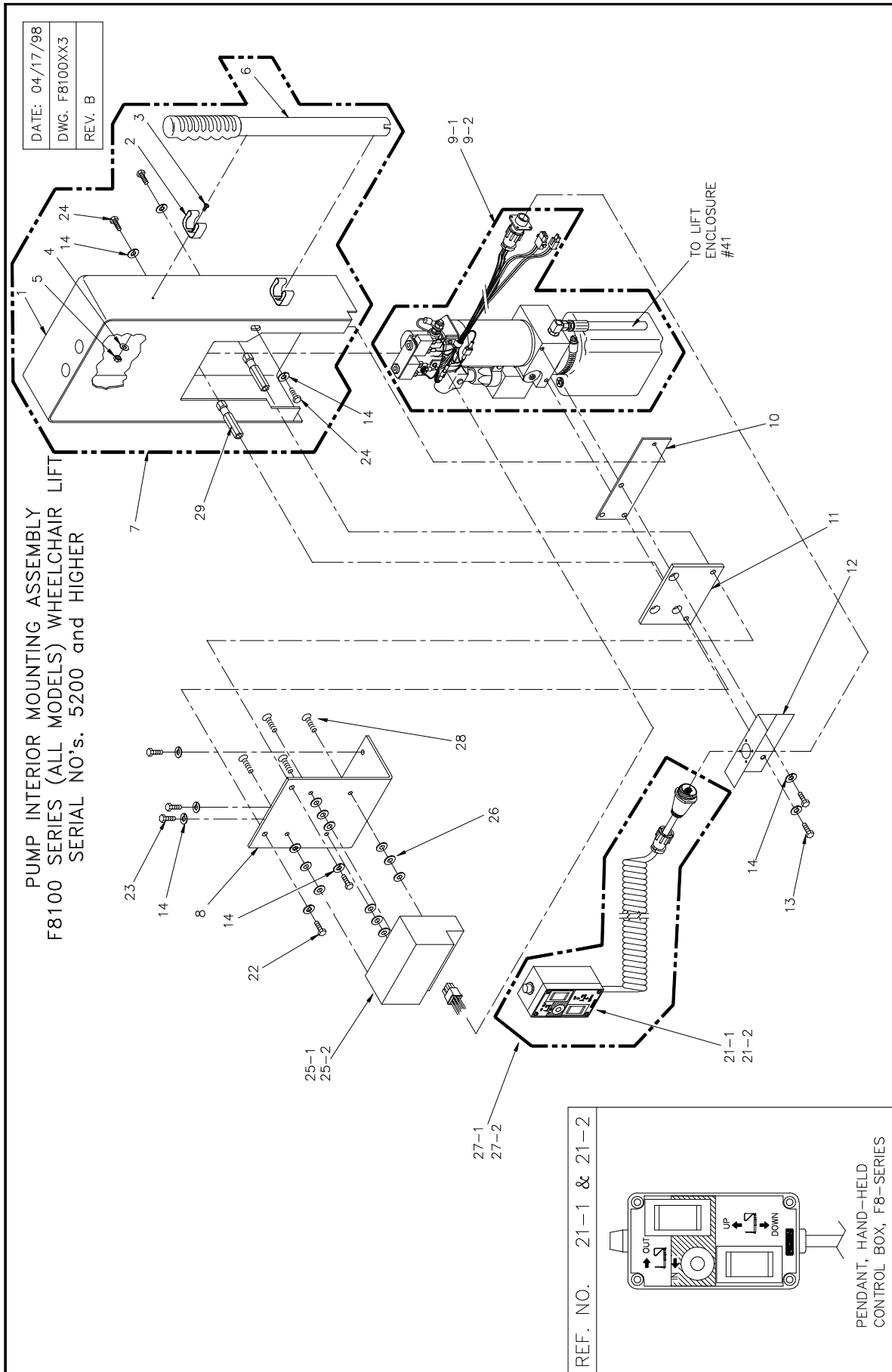


FIGURE 4-2: PUMP MOUNTING ASSEMBLY AND PENDANT

**FIGURE 4-2: PUMP INTERIOR MOUNTING ASSEMBLY
F8100 SERIES (ALL MODELS) WHEELCHAIR LIFT
SERIAL NO's. 5200 and HIGHER**

REF	DESCRIPTION	QTY	PART NO
1	COVER, PUMP	1	10346
2	CLIP, TOOL, EMERGENCY, LARGE	2	25543
3	SCREW, PHP, 10 - 24 X 1/2	2	28111
4	WASHER, FLT, .219 X .50 X .049	2	28271
5	NUT, JAM, 10-24 (BAG OF TEN)	1	14489
6	HANDLE- MANUAL BACK UP PUMP	1	V2-SH-111
7	KIT- PUMP COVER	1	F8-A250
8	BRACKET, PUMP MTG, VERT ; F8	1	F8-P301
9-1	HYDRAULIC-ASSY POWER UNIT, 12V ECLIPSE	1	PM212123007
9-2	HYDRAULIC-ASSY POWER UNIT, 24V ECLIPSE	1	PM224123007
10	PLATE, PUMP COVER MOUNT	1	V2-AC-71
11	PLATE, PUMP MOUNT	1	V2-AC-70
12	BRACKET, PENDANT; STRAIN RELIEF	1	10895
13	SCREW, HEX, 5/16 - 18 X 1 1/4 GR5	2	282231
14	WASHER, SPL, 5/16	10	28278
21-1	KIT, PENDANT, 12V ; F8	1	12130
21-2	KIT, PENDANT, 24V ; F8	1	12131
22	SCREW, HEX, 5/16 - 18 X 5/8 GR5 (BAG OF TEN)	1	14495
23	SCREW, HEX, 5/16 - 18 X 1 3/4 SST	3	282176
24	SCREW, HEX, 5/16 - 18 X 1/2 GR5	3	282157
25-1	RELAY BOX ASSY, 12V ; F8	1	12115
25-2	RELAY BOX ASSY, 24V ; F8	1	12116
26	WASHER, FLT, .281 X .625 X .065	12	28273
27-1	PENDANT ASSY, 12V ; F9A	1	F9-0375
27-2	PENDANT ASSY, 24V ; F9A	1	F9-0372
28	SCREW, FHP, 1/4 -20 X 3/4	4	28187
29	HEX, ROD-PUMP STANDOFF	2	V2-CV-015

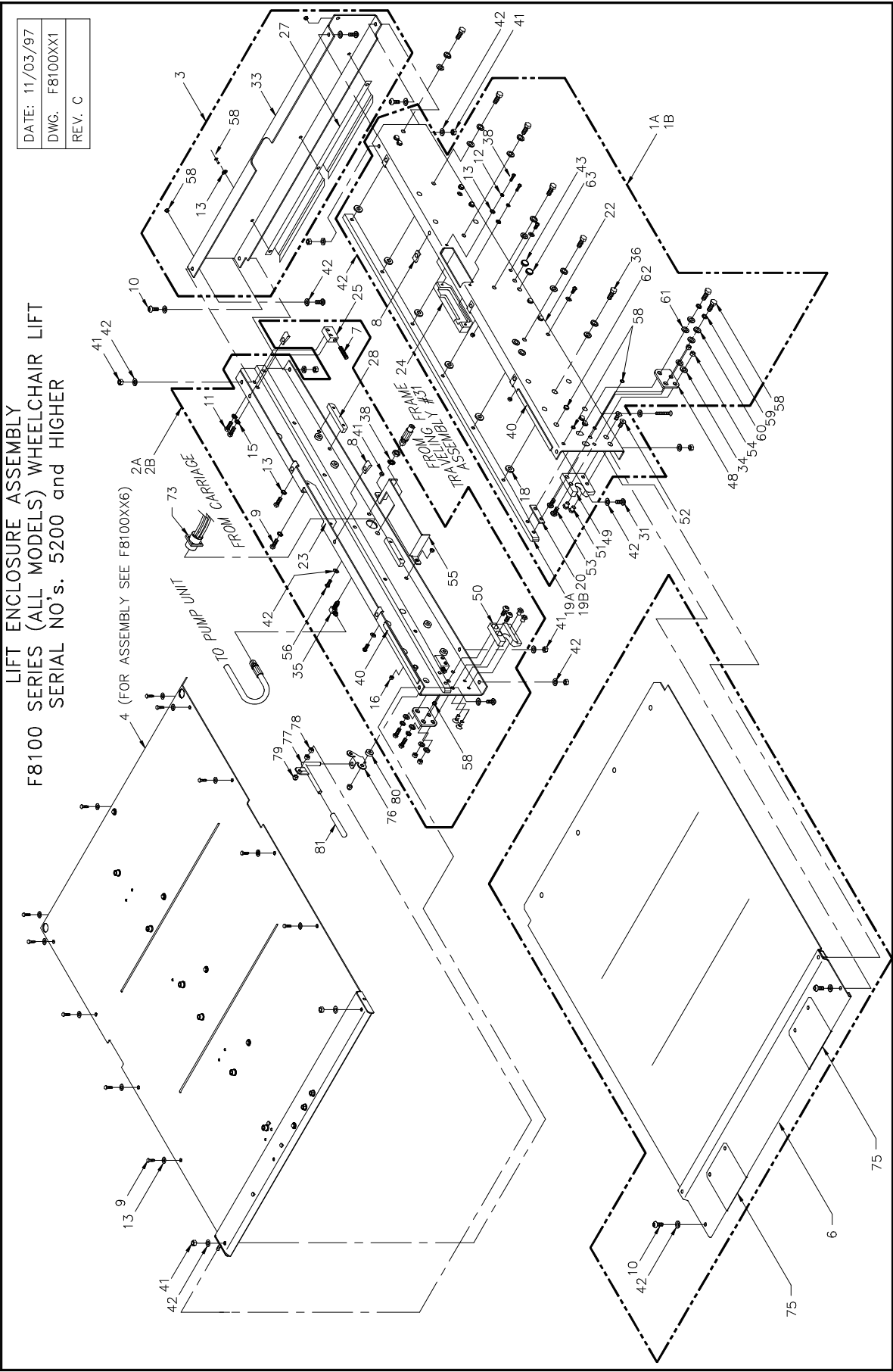


FIGURE 4-3: LIFT ENCLOSURE ASSEMBLY

LIFT ENCLOSURE TOP ASSEMBLY
F8100 SERIES (ALL MODELS) WHEELCHAIR LIFT
SERIAL NO's. 5200 and HIGHER

DATE: 11/03/97
DWG. F8100XX6
REV NO. A

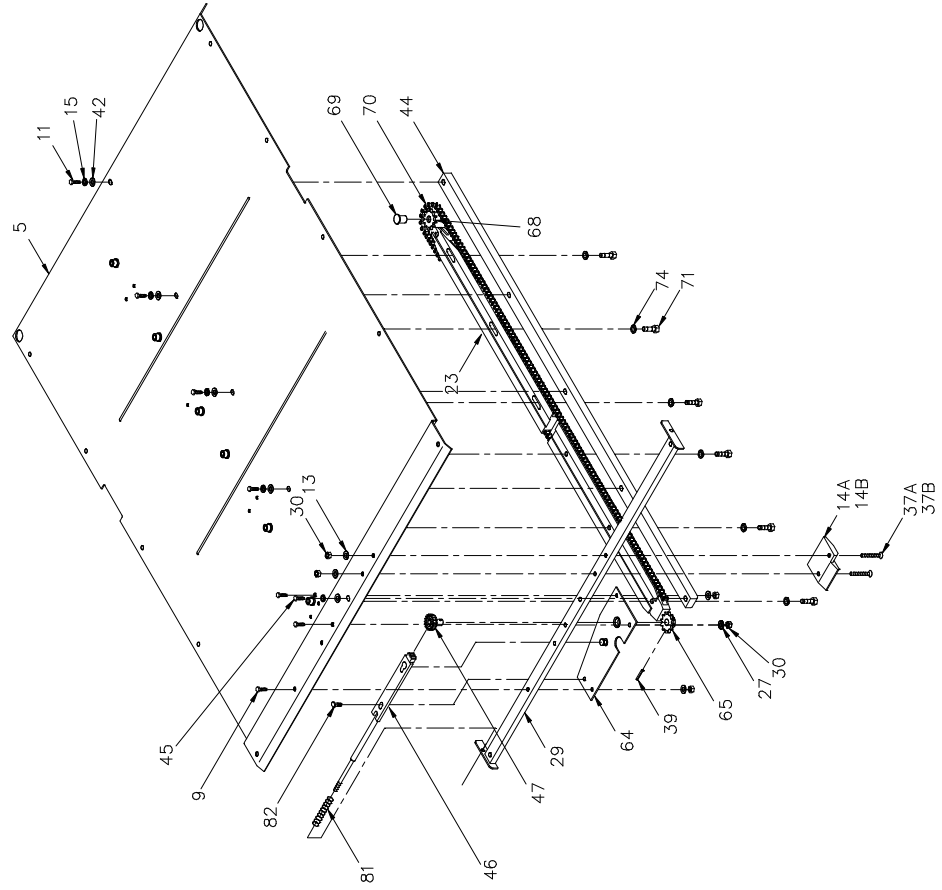


**FIGURE 4-4: LIFT ENCLOSURE ASSEMBLY
F8100 SERIES (ALL MODELS) WHEELCHAIR LIFT
SERIAL NO's. 5200 and HIGHER**

REF	DESCRIPTION	QTY	PART NO
1A	CHANNEL - ASSY, MTG FRM RH SL	1	F8-0372
1B	CHANNEL - ASSY, MTG FRM RH ST	1	F8-0349
2A	CHANNEL - ASSY, MTG FRM LH SL	1	F8-0373
2B	CHANNEL - ASSY, MTG FRM LH ST	1	F8-0371
3	CHANNEL, MOUNTING FRAME, REAR, MECH. ASSY.	1	F8-0065
4	COVER, TOP- ASSY	1	10854
5	COVER, TOP	1	F8-0374
6	COVER ASSY, BOTTOM	1	10845
7	SCREW, HSS, 3/8 - 16 X 1.25 NYLON PAT	4	282461
8	SPRING NUT - 1/4 - 20 SST	8	283105
9	SCREW, HEX, 1/4 - 20 X 5/8 GR5	23	28164
10	SCREW, BHS 5/16 - 18 X 3/4 SST	6	282285
11	SCREW, HEX 5/16 - 18 X 3/4 (BAG OF TEN)	1	15901
12	WASHER, SPL, #10 SST	4	282725
13	WASHER, FLT, .281 X .625 X .065	27	28273
14A	BLOCK, BRIDGEPLATE GUIDE, ANGLED CARR.	1	F8-0388
14B	BLOCK, BRIDGEPLATE GUIDE	1	F8-0383
15	WASHER, SPL, 5/16	8	28278
16	NUT, ESN 10 - 24	1	28305
17	WASHER, SPL, 3/8	12	28280
18	SPACER, GUIDERAIL	12	F8-0006
19A	RAIL - GUIDE SLOPING	2	F8-0378
19B	GUIDE RAIL, 47.00 X 1.00 X 0.50	2	F8-0007
20	PLATE, GUIDERAIL SHIM	2	F8-0344
22	CHANNEL - WASSY, MTG FRM, RH	1	F8-0347
23	CHANNEL - WASSY, MTG FRM, LH	1	F8-0348
24	RELIEF, MOUNTING FRAME	2	F8-0275
25	BLOCK, CARRIAGE STOP	4	F8-0082
27	BLOCK, RETAINING, BOTTOM COVER	3	F8-0161
28	BOTTOM - COVER RETAINER	4	UV-MF-046
29	TUBE, WLDT COVER SUPPORT	1	10836
30	NUT, ESN, 1/4 - 20 (BAG OF TEN)	1	15919
31	SCREW, BHS, 5/16 - 18 X 1 1/4	1	282256
32	WASHER, ESL, 7/16 SST	1	282915
33	CHANNEL ASSY, REAR	1	F8-0251
34	WASHER, FLT, .406 X .812 X .065 (SAE)	16	28283S
35	ADPTR-L 7/16M 7/16M 90 JIC/JIC BHD	1	V2-SH-98
36	SCREW, HEX, 3/8 - 16 X 7/8 GR5	12	282345
37-A	SCREW, FHH, 1/4 - 20 X 1 1/2	2	281846
37-B	SCREW, FHS, 1/4 - 20 X 1 3/4	2	28195
38	SCREW, PHP, 10 - 24 X 3/4 (BAG OF TEN)	1	15957

REF	DESCRIPTION	QTY	PART NO
39	ROLLPIN, 5/32 X 1 SST	1	28357
40	FOAM, RUBBER, BLK, 1/8 X 1/2 X 100FT, ADH	88"	06-06-107
41	NUT, ESN, 5/16 - 18	12	28314
42	WASHER, FLT, .344 X .688 X .065	24	28277
43	PLUG - 0.625 DIA. HOLE, 0.125 MTL., BLK PL.	2	26683
44	RAIL, ALIGNMENT	1	F8-0127
45	SCREW, HEX, 5/16 - 18 X 1 1/4 GR5	1	282231
46	LOCKING BAR, WLDT	1	10067
47	SHAFT, WLDT LOCKING/ RELEASE	1	10062
48 **	PLATE, GUIDERAIL MTG ST	2	F8-0377
49	BLOCK, ANTIRATTLE RH	1	F8-0343
50	BLOCK, ANTIRATTLE LH	1	F8-0342
51	NUT, S.S. TEE, 5/16 OD X 1/4 L NECK (BAG OF TEN)	1	14485
52	SCREW, FHH, 1/4 - 20 X 5/8	4	28648
53	SCREW, FHH, 1/4 - 20 X 5/8	4	8163
54	NUT, ESN, 3/8 - 16 (BAG OF TEN)	1	15931
55	BRACKET - HARNESS GUARD	1	F8-0436
56	SCREW, BHS, 5/16 - 18 X 3/4 SST	1	282285
57	PLUG, 0.31 i, 0.3 TO 0.14 MTL, BLK PL	5	25565
58	SCREW, HEX, 7/16 - 20 X 1 ZINC	4	28933
59	WASHER, SPL, 7/16	4	14-16-007
60	WASHER, FLT, .469 X .922 X .065	4	28291
61 *	WASHER, FLT, .469 X .922 X .065	4	28291
62	PLUG - 0.50 DIA., UP TO 0.13 MTL, BLK PLASTIC	1	V2-AC-91
63	PLUG, 0.43 - 0.45 DIA., UP TO 0.06 THK, BLK	1	26287
64	MOUNT PLATE WLDT, LOCK/ RELEASE	1	10822
65	SPROCKET - LOCK/ RELEASE, F8	1	10060
66	GUIDE - DRIVE CHAIN (FRONT) F8	1	10058
67	GUIDE - DRIVE CHAIN (REAR), F8	1	10064
68	SPROCKET - FREE WHEEL, F8	1	10059
69	PIN, FREE WHEEL, F8	1	10057
70	CHAIN, PRIME DRIVE, F8	1	10826
71	SCREW, HEX, 5/16 - 18 X 1 SST	6	282164
72	RIVNUT, 5/16 - 18 STL	6	28443
73	HARNESS, F8 INTERNAL	1	11531
74	WASHER, SPL, 5/16 SST	1	282785
76	BRACKET, HANDLE	2	10838
77	HANDLE, WLDT, LOCKING/ RELEASE	1	10844
78	NUT, HEX, 1/4 - 20 SST (BAG OF TEN)	1	15943
79	NUT, HEX, 1/4 - 20 ACORN	1	28311
80	SPACER, LOCKING/ RELEASE	1	10850
81	CAP,VINYL YLW .375-2.5 IL HUY BLK LETTER	1	01653
82	SHOULDER BOLT, 0.313 X 1/4-20 PRS	1	UV-PF-899
83	SPRING, COMPRESSION, 0.420 OD X 2.50 L, 0.067 MUSIC WIRE	1	1084
*	Hardware used for sloping track		
**	For straight track only		

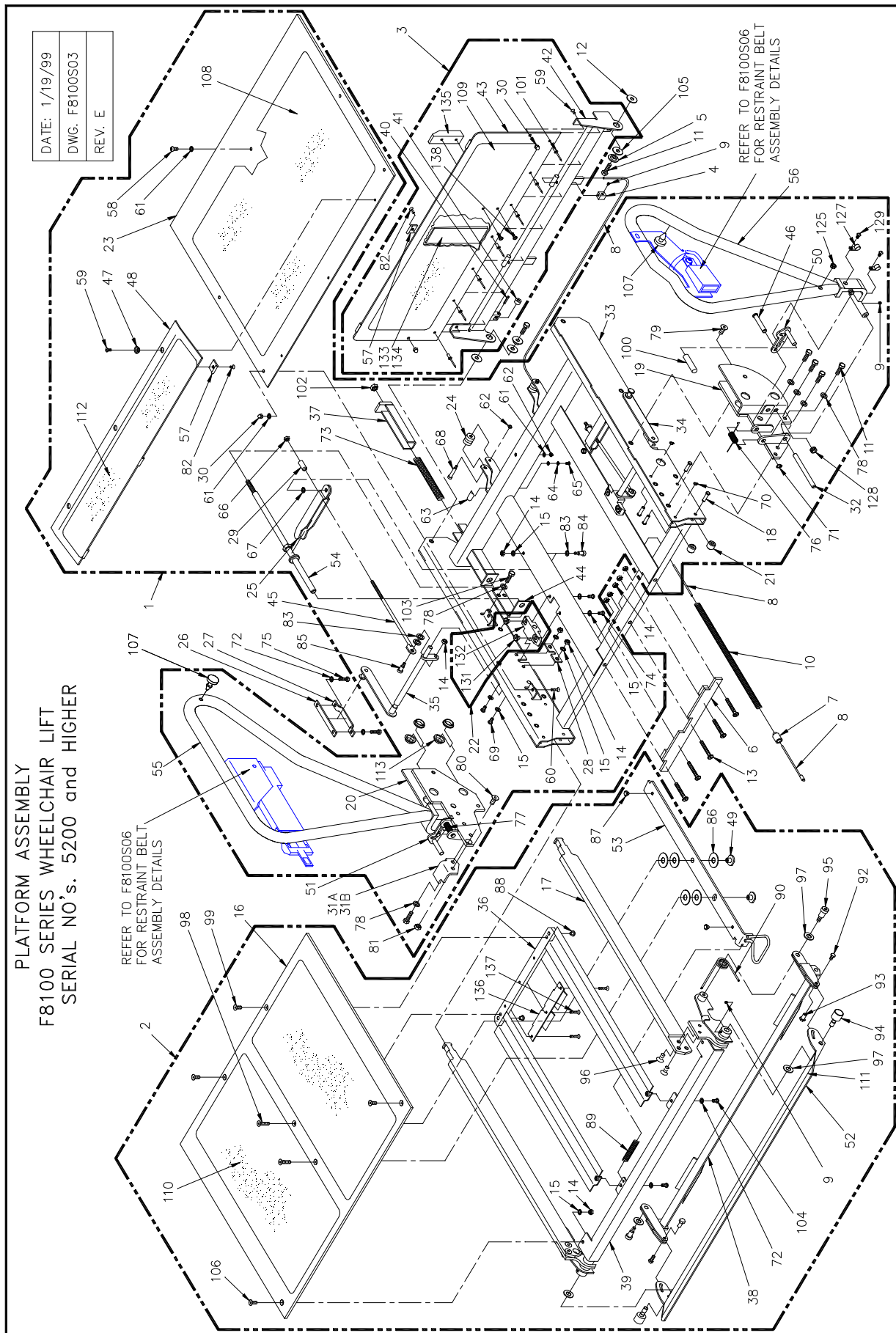


FIGURE 4-5: PLATFORM ASSEMBLY

**FIGURE 4-5: PLATFORM ASSEMBLY
F8100 SERIES EXPORT USE WHEELCHAIR LIFT
SERIAL NO's. 5200 and HIGHER**

REF	DESCRIPTION	QTY	PART NO
1	FIXED PLATFORM, ASSY.	1	F8-0427
2	SLIDING PLATFORM, ASSY.	1	F8-0428
3	BRIDGEPLATE, ASSY.	1	F8-0421
4	BLOCK, CABLE CLAMP, B-PLATE RETURN	2	F8-0139
5	BUSHING, STIRRUP PIVOT	2	UV-PF-039
6	PLATFORM STOP, WASSY.	1	F8-0440
7	BOBBIN, SPRING GUIDE	2	F8-0243
8	CABLE, BRIDGE PLATE RETURN	2	F8-0255
9	SS-1/4-20 X 0.25 SKT. CUP POINT	4	28200
10	SPRING, COMPR. 0.50 OD X 14" X 0.054 DIA.	2	254615
11	CS-5/16-18 X 1.00 HEX GR5 (BAG OF TEN)	1	15953
12	WASHER-0.31ID X 1.25OD X .05 FENDER SST.	2	283715
13	SCS-1/4-20 X 2.00 BTN. SKT.	5	28161
14	NUT-HEX 1/4-20 PLATED THIN NYLON	15	14-08-304
15	WASHER-1/4 FLAT	4	28273
16	PLATE, SLIDING PLATFORM SURFACE	1	F8-0022
17	GUIDERAIL, SLIDING PLATFORM	2	F8-0296
18	PIN, ROLLER PIVOT	8	F8-0055
19	BRACKET, MTG., PLATFORM, WASSY., R. HAND	1	F8-0060
20	BRACKET, MTG., PLATFORM, WASSY., L. HAND	1	F8-0061
21	ROLLER, SLIDING PLATFORM	8	F8-0062
22	BLOCK-ASSY. B-PLATE ACTUATOR PIVOT	2	F8-0064
23	PLATE, FIXED PLATFORM SURFACE	1	F8-0094
24	PULLEY, BRIDGEPLATE	2	F8-0081
25	LEVER, BRIDGEPLATE ACTUATOR, WASSY.	2	F8-0086
26	PLATE, PIN GUIDE, UPPER	2	F8-0087
27	PLATE, PIN GUIDE, LOWER	2	F8-0088
28	PLATE, MOUNTING, LINK PIVOT	2	F8-0090
29	COLLAR, SPACER BRIDGEPLATE ADJUSTER	2	F8-0091
30	NUT-10-24 HEX ACORN	6	28296
31A	STRIKER PLATE, STOW LOCK (SN 2188 TO 2299)	1	F8-0098
31B	STRIKER PLATE, STOW LOCK	1	F8-0272
32	SHAFT, HANDRAIL PIVOT	2	F8-0115
33	PLATFORM, FIXED-WASSY.	1	F8-0151
34	ACTUATOR CRANK, R.H., B-PLATE, WASSY.	1	F8-0156
35	ACTUATOR CRANK, L.H., B-PLATE, WASSY.	1	F8-0157
36	DECK SUPPORT, SLIDING PLATFORM, WASSY.	1	F8-0160
37	PUSHROD, B-PLATE ACTUATOR, WASSY.	2	F8-0166
38	ACTUATOR, ROLLSTOP, WASSY.	1	F8-0188
39	SLIDING PLATFORM, WASSY.	1	F8-0414

REF	DESCRIPTION	QTY	PART NO
40	SPRING-PIN 3/16 X 3/4	2	14-33-262
41	ROLLER, BRIDGEPLATE, OD 0.534	2	F8-0203
42	FRAME, BRIDGEPLATE, WASSY.	1	F8-0209
43	PLATE, BRIDGEPLATE	1	F8-0417
44	BRACKET, PULLROD GUIDE	2	F8-0212
45	PULLROD, B-PLATE ACTUATOR, WASSY.	2	F8-0213
46	PIN, LATCH PIVOT	2	F8-0217
47	BUSHING, MOUNTING, SLIDING PLATFORM	3	F8-0218
48	PLATE, PLATFORM RAMP	1	F8-0219
49	PIVOT BUSHING, PLATFORM LOCK	2	F8-0220
50	LATCH, HANDRAIL, R.H. WASSY.	1	F8-0222
51	LATCH, HANDRAIL, L.H. WASSY.	1	F8-0223
52	ROLLSTOP, WASSY.	1	F8-0416
53	BAR, PLATFORM LOCK	1	F8-0227
54	SHAFT, BRIDGEPLATE PUSHROD, WASSY.	2	F8-0233
55	HANDRAIL, LEFT HAND, WASSY.	1	F8-0237
56	HANDRAIL, RIGHT HAND, WASSY.	1	F8-0238
57	SKID, BRIDGE PLATE	6	UL-BA-021
58	SCS-10-24 X 0.75 BTN. SKT. SST.	1	28143
59	SCS-10-24 X 0.50 FLAT SKT. SST.	5	28137
60	MS-10-24 X 5/8 FLAT PHIL	4	28122
61	WASHER-#10 FLAT SST.	6	282715
62	NUT-10-24 NYLON	3	28305
63	CABLE GUIDE	2	F8-0252
64	WASHER-#6 FLAT AN960-6 (BAG OF TEN)	1	15927
65	SCREW, PHP, 6 - 32 X 3/8	1	28043
66	NUT, ESN, 1/4 - 20 (BAG OF TEN)	1	15919
67	WASHER, FLT, .318 X .751 X .031 NYL	1	28567
68	SCREW, SSS, 1/4 X 1 SST	1	283721
69	SCREW, BHS, 1/4 - 20 X 5/8	2	28162
70	RETAINING RING 1/4"	8	14-31-025
71	RETAINING RING 3/8"	2	14-31-037
72	WASHER-1/4 SPLIT LOCK	6	28274
73	SPRING, COMP. .70 OD X 10.38" X .095 SST	2	254616
74	SCS-1/4-20 X 0.50 BTN. SKT. SST	4	281965
75	CS-1/4-20 X 0.875 HEX GR5 (BAG OF TEN)	1	15920
76	SPRING, HANDRAIL, R.H.	1	F8-0265
77	SPRING, HANDRAIL, L.H.	1	F8-0266
78	WASHER-5/16 SPLIT LOCK	12	28278
79	SCS-5/16-18 X 1.00 FLAT SKT. SST	2	282251
80	SCS-5/16-18 X 0.75 FLAT SKT. (BAG OF TEN)	1	14499
82	MS-10-24 X 1/4 PHIL FLAT UNDER CUT	6	28106
83	WASHER-5/16 FLAT	5	28277
84	SHS-5/16 X 0.375, 1/4-20 SKT.	2	28373

REF	DESCRIPTION	QTY	PART NO
85	SHS-5/16 X 0.25, 1/4-20 SKT.	2	283731
86	WASHER, NYLON, .53 ID X 1.40 OD X 0.06	5	28251
87	GUIDE, DRIVE SHAFT PIVOT	2	UV-DS-014
88	BUTTON, GUIDE	2	UV-DS-017
89	SPRING, EXT., 0.50 X 3.50 X 0.054, SST	1	254531
90	SPRING, R.H., ROLLSTOP ACTUATOR RETURN	1	UV-SP-003
91	SPRING, L.H., ROLLSTOP ACTUATOR RETURN	1	UV-SP-002
92	CS-1/4-20 X 0.50 HEX GR5	2	28165
93	NUT,TEE-5/16 OD X 1/2 NECK SST. (BAG OF TEN)	1	14486
94	PIN-ROLLSTOP PIVOT	2	F8-0392
95	SHS-3/8 X 0.375, 5/16-18 SKT. SST.	2	283735
96	SCS-5/16-18 X 0.50 FLAT SKT. SST	4	282252
97	WASHER, NYLON, .375 ID X .630 X .072	4	28565
98	SCS-1/4-20 X 0.625 FLAT SKT. (BAG OF TEN)	1	15951
99	SCS-1/4-20 X 0.375 FLAT SKT. SST.	4	281856
100	VINYL CAP	2	01653
101	RIVET, BLIND AL 3/16 X 3/8 #AD66BS (BAG OF TEN)	1	15919
102	NUT-3/8-16 NYLON (BAG OF TEN)	2	15931
103	CS-5/16-18 X 0.625 HEX GR5 (BAG OF TEN)	4	14495
104	SCS-1/4-20 X 0.50 BTN. SKT. SST.	2	281965
105	WASHER-578ID X 1.067OD X 0.031 NYLON (BAG OF TEN)	1	15916
106	SCS-1/4-20 X 0.75 FLAT SKT. SST.	2	28184
107	BUMPER, RUBBER	2	V2-AC-86
108	SAFETY TREAD, 25.50 X 16.00, OCEAN GRAY	1	25663
109	SAFETY TREAD, 25.50 X 7.00, SAFETY YELLOW	1	25665
110	SAFETY TREAD, 21.75 X 11.13, OCEAN GRAY	2	25675
111	SAFETY TREAD, 25.50 X 3.00, SAFETY YELLOW	1	25664
112	SAFETY TREAD, 25.50 X 4.00, OCEAN GRAY	1	25662
113	BUSHING, 12FDU04, 3/4"ID X 1/4"	8	25386
114	PLUG, HANDRAIL, 0.75 DIA. ADHESIVE BACKED	4	F8-0335
125	BUSHING-1/2 SNAP IN	1	28-26-075
127	CLAMP-1/4 NYLON, BAG OF TEN	2	19771
128	GROMMET-0.38 X 0.56 X 0.19	1	26664
129	SCS-8-32 X 0.50 BTN. SKT.	2	28083
131	NUT,TEE-5 /16OD X 1/4 NECK (BAG OF TEN)	1	14485
132	BLOCK-BRIDGEPLATE ACTUATOR PIVOT	2	F8-0415
133	BLOCK-BRIDGEPLATE GUIDE	1	F9-0290
134	TAPE-ADHESIVE, TRANSFER 10 MIL. X 1.00 WIDE	1	263110
135	BLOCK-B-PLATE GUIDE BUMPER	1	F8-0441
136	BRACKET-PLATFORM STOP	1	F8-0442
137	SCS-10-24 X 0.375 FLAT SKT. (BAG OF TEN)	1	15962
138	SCREW 10 - 12 X .625 HI - LO SST	2	28112HL

DATE: 10/23/97
DWG: F8100E02
REV. A

TRAVELING FRAME ASSEMBLY
F8100 SERIES EXPORT USE WHEELCHAIR LIFT
SERIAL NO's. 5200 and HIGHER

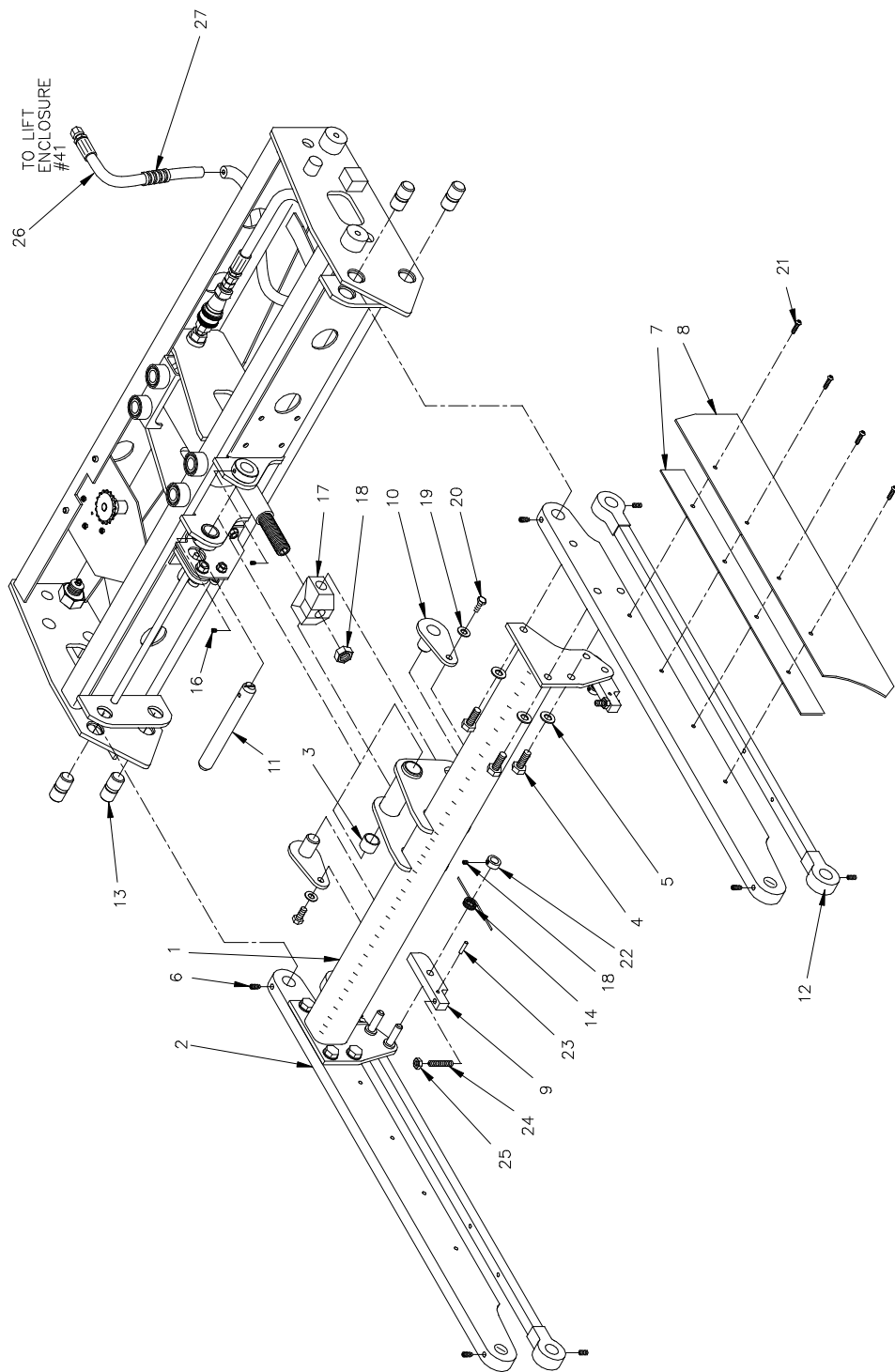


FIGURE 4-6: TRAVELING FRAME ASSEMBLY

**FIGURE 4-6: TRAVELING FRAME ASSEMBLY
F8100 SERIES EXPORT WHEELCHAIR LIFT
SERIAL NO's. 5200 and HIGHER**

REF	DESCRIPTION	QTY	PART NO
1	LIFTING FRAME, WELD ASSEMBLY	1	F8-0051
2	ARM, UPPER	1	F8-0005
3	BEARING, DU, 0.75ID X 0.875OD X 0.63	6	UV-BU-006
4	CS-3/8-16 X 1.00 HEX GR5	6	28235
5	WASHER-3/8 FLAT	6	28283S
6	SS-5/16-18 X 0.50 SKT., BAG OF TEN	8	15989
7	SHIM, LIFTING ARM COVER	2	F8-0107
8	COVER, LIFTING ARM	2	F8-0108
9	BAR, ROCKER STOP	2	F8-0067
10	KEEPER PLATE, WELD ASSEMBLY	2	F8-0043
11	PIN, 0.75 OD X 6.00	1	F8-0041
12	ARM-WASSY, PARALLEL, LOWER	2	F8-0430
13	PIN-PIVOT, LIFTING FRAME	8	F8-0042
14	SPRING-0.051 DIA., 180 DEG., 0.344 ID., LH.	1	254562
15	SPRING-0.051 DIA., 180 DEG., 0.344 ID., RH.	1	254561
16	SS-1/4-20 X 0.25 SKT. CUP POINT	4	28200
17	TRUNNION, CYLINDER	1	F8-0044
18	NUT-3/4-16 HEX JAM (BAG OF TEN)	1	15924
19	WASHER-5/16 FLAT	2	28277
20	CS-5/16-18 X 0.625 HEX GR5 (BAG OF TEN)	2	14495
21	SCS-1/4-20 X 1.00 BTN. SKT. SST.	8	28198
22	COLLAR-0.38ID X 0.75OD	2	VS-BU-02
23	PIN, ROLL-5/32 X 0.75, BAG OF TEN	2	15991
24	SS-5/16-18 X 1.50 SKT. CUP POINT	2	282249
25	NUT-5/16-18 HEXJAM	2	28315
26	HOSE-HYDRAULIC, SYNIFLEX 46"	1	F8-0253
27	CONDUIT-PLASTIC	35"	27201

CARRIAGE ASSEMBLY
F8100 SERIES (ALL MODELS) WHEELCHAIR LIFT
SERIAL NO's. 5200 AND HIGHER

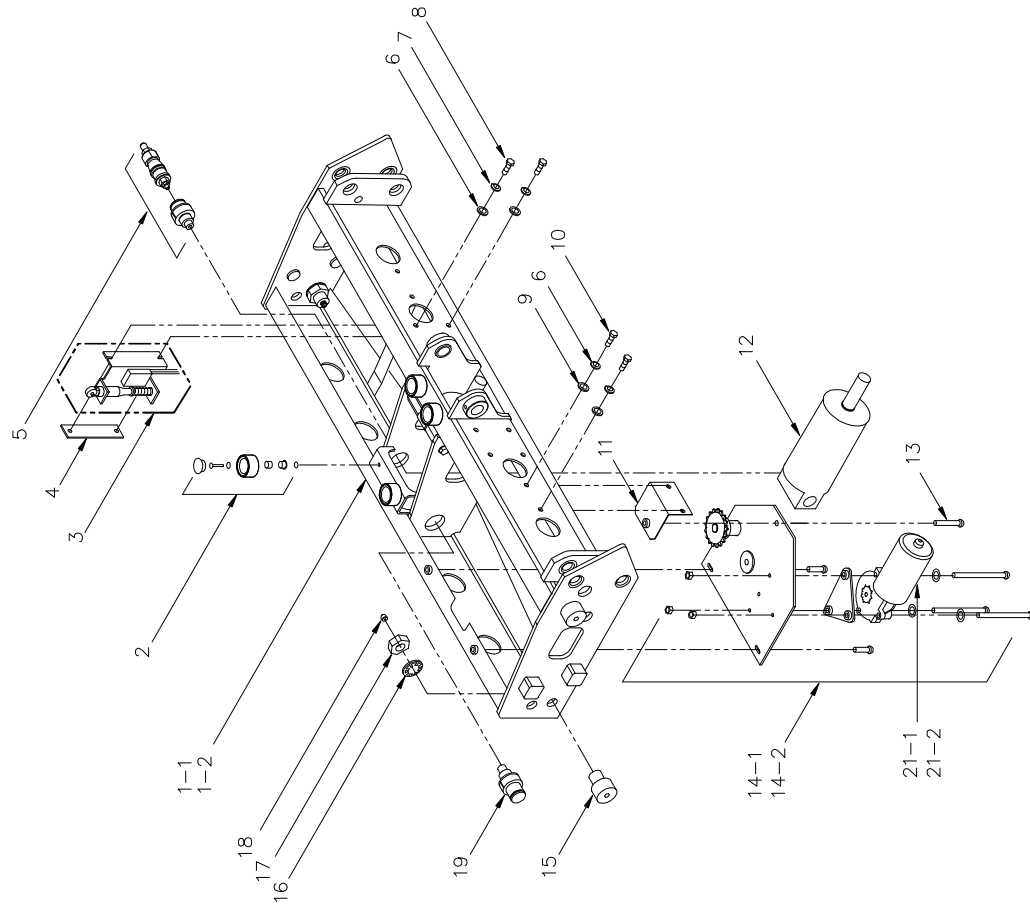


FIGURE 4-7: CARRIAGE ASSEMBLY

**FIGURE 4-7: CARRIAGE ASSEMBLY
F8100 SERIES (ALL MODELS) WHEELCHAIR LIFT
SERIAL NO's. 5200 and HIGHER**

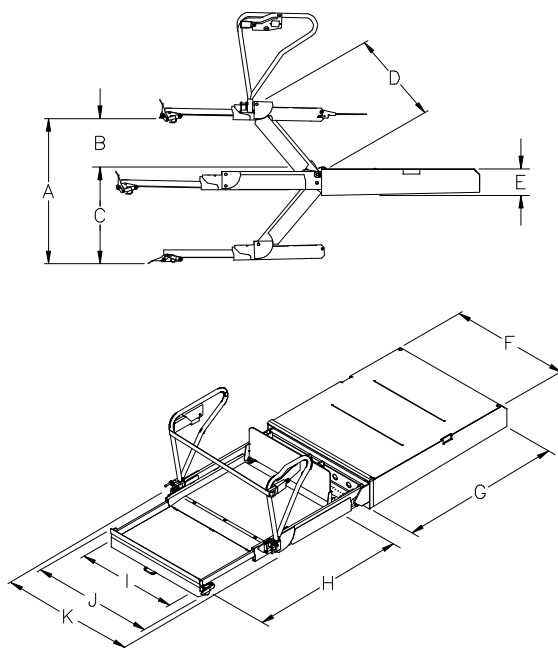
REF	DESCRIPTION	QTY	PART NO
1-1	CARRIAGE, ASSY 12V	1	10869
1-2	CARRIAGE, ASSY 24V	1	12106
2	ALIGNMENT ROLLER ASSY	4	12136
3	ROLLER, SWITCH - ASSY	1	15865
4	BAR - ROLLER SWITCH MOUNTING	1	F8-0382
5	HYDRAULIC FITTINGS ASSY	1	12137
6	WASHER, FLT, .281 X .625 X .065	4	28273
7	WASHER, SPL, 1/4	2	28274
8	SCREW, HEX, 1/4 - 20 X 3/4 GR5	2	28166
9	WASHER, SPL, 1/4 SST	2	282745
10	SCREW, HEX, 1/4 - 20 X 3/4 SST	2	281665
11	MOUNTBRACKET WLDT; F8	1	10837
12	CYLINDER, HYDRAULIC	1	16213
13	SCREW, HEX, 5/16 - 18 X 3/4 SST	1	282205
14-1	MOTOR - PLATE ASSY, 12V; F8	1	10855
14-2	MOTOR - PLATE ASSY, 24V, F8	1	12105
15	CAM FOLLOWER	4	40-20-006
16	WASHER, 3/4, INTERNAL STAR (BAG OF TEN)	1	15925
17	NUT, HEX, 3/4 - 16, JAM (BAG OF TEN)	1	15924
18	FITTING, GREASE, 65 DEG PRESS-IN	4	21-02-011
19	FITTING, PIVOT w/ O-RING	1	12138
20 *	HARNESS, INTERNAL; F8	1	11531
21-1	ASSY, MOTOR, STOW/DEPLOY 12V, F8	1	11535
21-1	ASSY, MOTOR, STOW/DEPLOY 24V, F8	1	12128

* item not shown

APPENDIX 1 LIFT SPECIFICATIONS

F8100 SERIES EXPORT USE WHEELCHAIR AND STANDEE LIFT

Power.....electro-hydraulic motor	Rated load capacity..... 660 lbs.
Pump rating - 12 volts DC 65 amp. avg./cycle, 1250 psi	Manual backup (up)..... manual hand pump
Pump rating - 24 volts DC 32.5 amp. avg./cycle, 1250 psi	Manual backup (down) pressure release valve
Hydraulic cylinders.....2ea, 1.5", power-up/gravity-down	Lift weight..... approx. 406 lbs



DIMENSIONS, inches

MODEL	A	B	C	D	E	F	G	H	I	J	K
F8100	Floor-to-ground travel	Travel Above	Travel Below	Arm Length	Stowed Height	Stowed Width	Stowed Length	Usable Platform Length	Usable Platform Width	Clear Entry Width	Traveling Frame Width
	44.5	15.6	28.4	27.3	8.60	36.0	48.0	48.0	28.5	32.5	35.0

